United States Department of Agriculture

Natural Resources Conservation Service

United States Department of the Interior

National Park Service

Soil Survey of Whiskeytown National Recreation Area, California

How To Use This Soil Survey

This publication consists of text, tables, and maps. The text includes descriptions of detailed soil map units and provides an explanation of the information presented in the tables. It also includes a glossary of terms used in the text and tables and a list of references.

The detailed soil maps can be useful in planning the use and management of small areas. To find information about your area of interest, locate that area on the map sheet. Note the map unit symbols that are in that area. Go to the Contents, which lists the map units by symbol and name and shows where each map unit is described.

The Contents shows which table has data on a specific land use for each detailed soil map unit. Also see the Contents for sections of this publication that may address your specific needs.

National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the United States Department of Agriculture, Natural Resources Conservation Service, and the United States Department of the Interior, National Park Service.

The soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, the maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Literature Citation

The correct citation for this survey is as follows:

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Cover Caption

View of Whiskeytown National Recreation Area from the park's Visitor Center.

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Contents

How To Use This Soil Survey iii
Preface xi
Introduction 1
How This Survey Was Made 1
Detailed Soil Map Units 3
459936—Auburn loam, 8 to 30 percent slopes 4
459937—Auburn very stony loam, 8 to 30 percent slopes 5
459939—Auburn very stony clay loam, 30 to 50 percent slopes, eroded 6
459940—Auburn very rocky clay loam, 50 to 70 percent slopes, eroded 8
459941—Behemotosh very stony loam, 8 to 30 percent slopes 9
459942—Behemotosh very stony loam, 30 to 50 percent slopes, eroded 10
459943—Behemotosh very rocky loam, 50 to 70 percent slopes, eroded 12
459945—Boomer gravelly loam, 15 to 30 percent slopes 13
459946—Boomer gravelly loam, 30 to 50 percent slopes 14
459947—Boomer very stony loam, 50 to 70 percent slopes 16
459948—Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded 17
459950—Chaix coarse sandy loam, 30 to 50 percent slopes, severely eroded 18
459951—Chaix coarse sandy loam, 50 to 70 percent slopes, severely eroded 20
459952—Chaix sandy loam, 5 to 30 percent slopes, eroded 21
459953—Chaix sandy loam, 30 to 50 percent slopes 22
459954—Chaix sandy loam, 50 to 70 percent slopes 23
459959—Churn gravelly loam, 3 to 8 percent slopes 25
459963—Cobbly alluvial land 26
459975—Colluvial land 27
459981—Corbett loamy coarse sand, 15 to 50 percent slopes 28
459982—Corbett loamy coarse sand, 30 to 70 percent slopes, severely eroded 29
459983—Corbett loamy coarse sand, 50 to 80 percent slopes 31
459984—Corbett very rocky loamy coarse sand, 30 to 80 percent slopes 32
459985—Diamond Springs very stony sandy loam, 8 to 30 percent slopes, eroded 33
459986—Diamond Springs very rocky sandy loam, 30 to 50 percent slopes, eroded 35
459995—Goulding very stony loam, 10 to 30 percent slopes 36
459996—Goulding very rocky loam, 30 to 50 percent slopes, eroded 37
459997—Goulding very rocky loam, 50 to 70 percent slopes, eroded 39
460004—Holland sandy loam, 15 to 50 percent slopes 40
460005—Holland sandy loam, 50 to 70 percent slopes 41
460020—Josephine gravelly loam, 50 to 70 percent slopes 43
460028—Kanaka rocky sandy loam, 5 to 30 percent slopes 44
460029—Kanaka rocky sandy loam, 30 to 50 percent slopes 46
460030—Kanaka rocky sandy loam, 50 to 70 percent slopes, eroded 47
460034—Kidd very rocky loam, 10 to 60 percent slopes, eroded 49

460041—Landslides 50
460054—Maymen very stony loam, 30 to 80 percent slopes, eroded 51
460062—Millsholm gravelly loam, 50 to 75 percent slopes 52
460076—Neuns very stony loam, 8 to 50 percent slopes....54
460077—Neuns very stony loam, 50 to 80 percent slopes....55
460080—Newtown gravelly loam, 30 to 50 percent slopes, eroded 56
460081—Newtown stony loam, 8 to 50 percent slopes, eroded....57
460098—Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes 59
460103—Reiff sandy loam, channeled, 0 to 8 percent slopes....60
460112—Riverwash 61
460113—Rockland....62
460140—Stonyford very stony loam, 30 to 50 percent slopes....63
460141—Stonyford very stony loam, 50 to 75 percent slopes....64
460147—Tailings and placer diggings 66
1395761—Water 67
Use and Management of the Soils 69
Interpretive Ratings 69
Rating Class Terms....69
Numerical Ratings 69
Land Capability Classification 70
Prime and Other Important Farmland 71
Hydric Soils 72
Rangeland....73
Land Management 74
Recreation....76
Engineering....77
Dwellings and Small Commercial Buildings....78
Roads and Streets, Shallow Excavations, and Landscaping....78
Sewage Disposal 79
Source of Gravel and Sand 80
Source of Reclamation Material, Roadfill, and Topsoil....81
Ponds and Embankments....82
Soil Properties 83
Engineering Properties....83
Physical Soil Properties 84
Erosion Properties....85
Total Soil Carbon....86
Chemical Soil Properties....87
Water Features....87
Soil Features....88
Formation and Classification of the Soils....91
Factors of Soil Formation 91
Classification of the Soils 98
References 101

Glossary 103
Tables 111
Table 1.—Soil Legend 112
Table 2.—Land Capability Classification 119
Table 3.—Prime and Other Important Farmland 122
Table 4.—Hydric Soils 123
Table 5.—Rangeland Productivity 124
Table 6.—Land Management, Part I (Planting) 125
Table 6.—Land Management, Part II (Hazard of Erosion and Suitability for Roads) 130
Table 6.—Land Management, Part III (Site Preparation) 134
Table 6.—Land Management, Part IV (Site Restoration) 139
Table 7.—Recreation, Part I (Camp and Picnic Areas) 144
Table 7.—Recreation, Part II (Trail Management) 149
Table 8.—Dwellings and Small Commercial Buildings 154
Table 9.—Roads and Streets, Shallow Excavations, and Landscaping 159
Table 10.—Sewage Disposal 166
Table 11.—Source of Gravel and Sand 173
Table 12.—Source of Reclamation Material, Roadfill, and Topsoil 178
Table 13.—Ponds and Embankments 184
Table 14.—Engineering Properties 189
Table 15.—Physical Soil Properties 196
Table 16.—Erosion Properties 202
Table 17.—Total Soil Carbon 207
Table 18.—Chemical Soil Properties 210
Table 19.—Water Features 214
Table 20.—Soil Features 220
Table 21.—Taxonomic Classification of the Soils 225

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Preface

This soil survey was developed in conjunction with the National Park Service's Soil Inventory and Monitoring Program and is intended to serve as the official source document for soils occurring within Whiskeytown National Recreation Area.

This soil survey contains information that affects current and future land use planning in the park. It contains predictions of soil behavior for selected land uses. The survey highlights soil limitations, actions needed to overcome the limitations, and the impact of selected land uses on the environment. It is designed to meet the needs of the National Park Service and its partners to better understand the properties of the soils in the park and the effects of these soil properties on various natural ecological characteristics. This knowledge can help the National Park Service and its partners to understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the park office for Whiskeytown National Recreation Area.

Soil Survey of Whiskeytown National Recreation Area, California

United States Department of Agriculture, Natural Resources Conservation Service, and United States Department of the Interior, National Park Service

How This Survey Was Made

This document was prepared in conjunction with the National Park Service's Soil Inventory and Monitoring Program to provide information about the soils and miscellaneous areas within Whiskeytown National Recreation Area.

The soil survey for Whiskeytown National Recreation Area was extracted from the Natural Resources Conservation Service's soil survey of Shasta County Area, California. The area was originally correlated in 1967 based on field mapping conducted in prior years. The soil mapping scale was 1:20000.

In March of 2008, the Natural Resources Conservation Service soil survey staff in California refreshed and recertified the soil maps and attribute data.

The data for this document was extracted from the Soil Data Mart and from the National Soils Information System (NASIS). There are presently 50 map units and 184 individual soil and nonsoil map unit components contained within Whiskeytown National Recreation Area.

The information in this report includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units).

Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they delineated the boundaries of these bodies on digital imagery and identified each as a specific map unit.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the park. The map unit descriptions in this section, along with the map, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the maps provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their

use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Auburn very stony loam, 8 to 30 percent slopes, is a phase of the Auburn series.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rockland is an example.

Table 1 lists each map unit in the park, its major and minor components, and the percentage of each component in the unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

459936—Auburn loam, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 120 to 2,995 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 175 to 275 days

Map Unit Composition

Auburn and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Auburn Soil

Taxonomic Classification
Loamy, oxidic, thermic Ruptic-Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 8 to 30 percent
Down-slope shape: Linear
Across-slope shape: Linear
Representative aspect: Southeast
Aspect range: Northeast to southwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic

Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.3 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 4e
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Whiteleaf manzanita, wild oat, soft chess, ripgut brome, red brome, clover, buckbrush, stork's bill, foxtail fescue, Mediterranean barley, burclover, foothill pine, blue oak, interior live oak, and poison oak

Typical Profile
0 to 8 inches; loam
8 to 24 inches; gravelly loam
24 to 28 inches; unweathered bedrock

Minor Components

Tailings and placer diggings
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Auberry soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459937—Auburn very stony loam, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 295 to 2,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 175 to 275 days

Map Unit Composition

Auburn and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Auburn Soil

Taxonomic Classification
Loamy, oxidic, thermic Ruptic-Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 8 to 30 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to west (clockwise)

Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 20 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.5 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6s
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Whiteleaf manzanita, wild oat, soft chess, ripgut brome, red brome, buckbrush, stork's bill, foxtail fescue, Mediterranean barley, burclover, foothill pine, blue oak, interior live oak, and clover

Typical Profile
0 to 8 inches; very stony loam
8 to 20 inches; gravelly loam
20 to 24 inches; unweathered bedrock

Minor Components

Unnamed soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Tailings and placer diggings
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459939—Auburn very stony clay loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 295 to 2,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 175 to 275 days

Map Unit Composition

Auburn and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Auburn Soil

Taxonomic Classification
Loamy, oxidic, thermic Ruptic-Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: Southeast
Aspect range: Northeast to southwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 27 to 31 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.5 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Whiteleaf manzanita, wild oat, soft chess, ripgut brome, red brome, buckbrush, stork's bill, foxtail fescue, Mediterranean barley, burclover, foothill pine, blue oak, interior live oak, and clover

Typical Profile
0 to 5 inches; very stony clay loam
5 to 27 inches; gravelly clay loam
27 to 31 inches; unweathered bedrock

Minor Components

Stonyford soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 7 percent
Representative aspect: North
Meets hydric soil criteria: No

459940—Auburn very rocky clay loam, 50 to 70 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 120 to 2,995 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 175 to 275 days

Map Unit Composition

Auburn and similar soils: 75 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Description of Auburn Soil

Taxonomic Classification
Loamy, oxidic, thermic Ruptic-Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southwest
Aspect range: Northeast to west (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 20 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.9 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Whiteleaf manzanita, wild oat, soft chess, ripgut brome, red brome, buckbrush, stork’s bill, foxtail fescue, Mediterranean barley, burclover, foothill pine, blue oak, interior live oak, poison oak, and clover

Typical Profile
0 to 5 inches; clay loam
5 to 20 inches; gravelly clay loam
20 to 24 inches; unweathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: Southwest
Aspect range: Northeast to west (clockwise)

Minor Components

Stonyford soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459941—Behemotosh very stony loam, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 22B—Southern Cascade Mountains
Elevation: 1,495 to 2,995 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Behemotosh and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Behemotosh Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 8 to 30 percent
Down-slope shape: Concave
Across-slope shape: Concave

Representative aspect: West
Aspect range: Southeast to north (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from rhyolite
Restrictive feature(s): Lithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.6 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6s
Meets hydric soil criteria: No
Hydrologic soil group: C

Typical Profile
0 to 16 inches; very stony loam
16 to 24 inches; very cobbly loam
24 to 28 inches; unweathered bedrock

Minor Components

Kidd soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Boomer soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459942—Behemotosh very stony loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 22B—Southern Cascade Mountains
Elevation: 1,495 to 2,995 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Behemotosh and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Behemotosh Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: Northeast
Aspect range: Northwest to southwest (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from rhyolite
Restrictive feature(s): Lithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.6 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: C

Typical Profile
0 to 4 inches; very stony loam
4 to 16 inches; gravelly loam
16 to 24 inches; very cobbly loam
24 to 28 inches; unweathered bedrock

Minor Components

Kidd soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Boomer soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459943—Behemotosh very rocky loam, 50 to 70 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 22B—Southern Cascade Mountains
Elevation: 1,495 to 2,995 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Behemotosh and similar soils: 65 percent
Rock outcrop: 15 percent
Dissimilar minor components: 20 percent

Description of Behemotosh Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: East
Aspect range: North to northwest (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from rhyolite
Restrictive feature(s): Lithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.6 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: C

Typical Profile
0 to 4 inches; very stony loam
4 to 16 inches; gravelly loam
16 to 24 inches; very cobbly loam
24 to 28 inches; unweathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: North to southwest (clockwise)

Minor Components

Kidd soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Boomer soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459945—Boomer gravelly loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 600 to 5,495 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 120 to 260 days

Map Unit Composition

Boomer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Boomer Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 15 to 30 percent

Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: North to southwest (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Paralithic bedrock at a depth of 45 to 49 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 6.9 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 4e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 3 inches; gravelly loam
3 to 23 inches; gravelly sandy clay loam
23 to 45 inches; clay loam
45 to 49 inches; weathered bedrock

Minor Components

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Stonyford soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459946—Boomer gravelly loam, 30 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 600 to 5,495 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 120 to 260 days

Map Unit Composition

Boomer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Boomer Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: Northeast
Aspect range: Northwest to southeast (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Paralithic bedrock at a depth of 45 to 49 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 6.9 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 3 inches; gravelly loam
3 to 23 inches; gravelly sandy clay loam
23 to 45 inches; clay loam
45 to 49 inches; weathered bedrock

Minor Components

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Stonyford soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459947—Boomer very stony loam, 50 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 600 to 5,495 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 120 to 260 days

Map Unit Composition

Boomer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Boomer Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Northeast
Aspect range: Northwest to east (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Paralithic bedrock at a depth of 45 to 49 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 6.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 3 inches; very stony loam
3 to 23 inches; stony sandy clay loam
23 to 45 inches; stony clay loam
45 to 49 inches; weathered bedrock

Minor Components

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Stonyford soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459948—Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 600 to 5,495 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 120 to 260 days

Map Unit Composition

Boomer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Boomer Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: East
Aspect range: North to south (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Paralithic bedrock at a depth of 30 to 49 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 4.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: C

Typical Profile
0 to 1 inch; very stony clay loam
1 to 20 inches; stony sandy clay loam
20 to 30 inches; stony clay loam
30 to 34 inches; weathered bedrock

Minor Components

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Stonyford soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459950—Chaix coarse sandy loam, 30 to 50 percent slopes, severely eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,200 to 6,495 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 100 to 225 days

Map Unit Composition

Chaix and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Chaix Soil

Taxonomic Classification
Coarse-loamy, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southeast
Aspect range: Northeast to south (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 26 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 5 inches; coarse sandy loam
5 to 26 inches; coarse sandy loam
26 to 30 inches; weathered bedrock

Minor Components

Holland soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Kanaka soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Sierra soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459951—Chaix coarse sandy loam, 50 to 70 percent slopes, severely eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,200 to 6,495 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 100 to 225 days

Map Unit Composition

Chaix and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Chaix Soil

Taxonomic Classification
Coarse-loamy, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southeast
Aspect range: Northeast to southwest (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 26 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 5 inches; coarse sandy loam
5 to 26 inches; coarse sandy loam
26 to 30 inches; weathered bedrock

Minor Components

Holland soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Kanaka soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Sierra soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459952—Chaix sandy loam, 5 to 30 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,200 to 6,495 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 100 to 225 days

Map Unit Composition

Chaix and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Chaix Soil

Taxonomic Classification
Coarse-loamy, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 5 to 30 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: North to west (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Low
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 26 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches

Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 7 inches; sandy loam
7 to 26 inches; sandy loam
26 to 30 inches; weathered bedrock

Minor Components

Holland soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Kanaka soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Sierra soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459953—Chaix sandy loam, 30 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,200 to 6,495 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 100 to 225 days

Map Unit Composition

Chaix and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Chaix Soil

Taxonomic Classification
Coarse-loamy, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent

Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: West to southeast (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 26 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 9 inches; sandy loam
9 to 26 inches; sandy loam
26 to 30 inches; weathered bedrock

Minor Components

Holland soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Kanaka soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Sierra soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459954—Chaix sandy loam, 50 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,200 to 6,495 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 100 to 225 days

Map Unit Composition

Chaix and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Chaix Soil

Taxonomic Classification
Coarse-loamy, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: North to south (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 26 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 9 inches; sandy loam
9 to 26 inches; sandy loam
26 to 30 inches; weathered bedrock

Minor Components

Holland soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Kanaka soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Sierra soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459959—Churn gravelly loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 400 to 800 feet
Mean annual precipitation: 35 to 35 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 250 to 275 days

Map Unit Composition

Churn and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Churn Soil

Taxonomic Classification
Fine-loamy, mixed, thermic Ultic Haploxeralfs

Setting
Landscape: River valleys
Landform: Terraces
Landform position (two-dimensional): Summit, shoulder, and backslope
Landform position (three-dimensional): Riser and tread
Slope range: 3 to 8 percent
Down-slope shape: Linear
Across-slope shape: Linear
Representative aspect: East
Aspect range: Northwest to southwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: High
Parent material: Alluvium
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 8.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 3e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 13 inches; gravelly loam
13 to 60 inches; gravelly loam

Minor Components

Cobbly alluvial land
Percent of map unit: 5 percent
Landform: Drainageways
Representative aspect: North
Meets hydric soil criteria: Yes

Honcut soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Perkins soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

Tahama soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459963—Cobbly alluvial land

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 19.7 to 2,402 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 200 to 300 days

Map Unit Composition

Cobbly alluvial land: 90 percent
Dissimilar minor components: 10 percent

Description of Cobbly Alluvial Land

Taxonomic Classification
Clayey, mixed, thermic Typic Haploxerults

Setting
Landscape: River valleys
Landform: Flood plains
Landform position (two-dimensional): Summit and shoulder
Landform position (three-dimensional): Tread
Slope range: 1 to 5 percent
Down-slope shape: Linear
Across-slope shape: Linear
Representative aspect: East
Aspect range: North to south (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Very low
Parent material: Gravelly alluvium
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.4 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 4s
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 12 inches; very cobbly sand
12 to 60 inches; very cobbly loamy sand

Minor Components

Cobbly alluvial land, hydric
Percent of map unit: 10 percent
Landform: Drainageways
Representative aspect: North
Meets hydric soil criteria: Yes

459975—Colluvial land

Map Unit Setting

Major land resource area (MLRA): 22B—Southern Cascade Mountains

Map Unit Composition

Colluvial land: 90 percent
Dissimilar minor components: 10 percent

Description of Colluvial Land

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southwest
Aspect range: Northwest to west (clockwise)

Properties and Qualities
Runoff: Low
Parent material: Colluvium
Restrictive feature(s): None within a depth of 60 inches

Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: A

Typical Profile
0 to 6 inches; extremely gravelly sandy loam
6 to 60 inches; extremely gravelly sandy loam

Minor Components

Unnamed soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

459981—Corbett loamy coarse sand, 15 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 6,000 to 8,995 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition

Corbett and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Corbett Soil

Taxonomic Classification
Mixed, frigid Dystric Xeropsamments

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 15 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: East
Aspect range: Northeast to northwest (clockwise)
Soil temperature class: Frigid
Soil temperature regime: Frigid

Properties and Qualities
Runoff: Low
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.7 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 8 inches; loamy coarse sand
8 to 24 inches; gravelly loamy coarse sand
24 to 28 inches; weathered bedrock

Minor Components

Unnamed soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Holland soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459982—Corbett loamy coarse sand, 30 to 70 percent slopes, severely eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 6,000 to 8,995 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition

Corbett and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Corbett Soil

Taxonomic Classification
Mixed, frigid Dystric Xeropsamments

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to northwest (clockwise)
Soil temperature class: Frigid
Soil temperature regime: Frigid

Properties and Qualities
Runoff: Low
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 20 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.4 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 4 inches; loamy coarse sand
4 to 20 inches; gravelly loamy coarse sand
20 to 24 inches; weathered bedrock

Minor Components

Unnamed soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Holland soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

459983—Corbett loamy coarse sand, 50 to 80 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 6,000 to 8,995 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition

Corbett and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Corbett Soil

Taxonomic Classification
Mixed, frigid Dystric Xeropsamments

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 75 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: North
Aspect range: West to east (clockwise)
Soil temperature class: Frigid
Soil temperature regime: Frigid

Properties and Qualities
Runoff: Low
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.7 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 8 inches; loamy coarse sand
8 to 24 inches; gravelly loamy coarse sand
24 to 28 inches; weathered bedrock

Minor Components

Unnamed soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 7 percent
Representative aspect: North
Meets hydric soil criteria: No

459984—Corbett very rocky loamy coarse sand, 30 to 80 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 6,000 to 8,995 feet
Mean annual precipitation: 25 to 55 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 60 to 80 days

Map Unit Composition

Corbett and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Description of Corbett Soil

Taxonomic Classification
Mixed, frigid Dystric Xeropsamments

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 75 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: South
Aspect range: Northeast to northwest (clockwise)
Soil temperature class: Frigid
Soil temperature regime: Frigid

Properties and Qualities
Runoff: Low
Parent material: Residuum weathered from granite
Restrictive feature(s): Paralithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained

Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.7 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 8 inches; loamy coarse sand
8 to 24 inches; gravelly loamy coarse sand
24 to 28 inches; weathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 80 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: Northwest to south (clockwise)

Minor Components

Unnamed soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 7 percent
Representative aspect: North
Meets hydric soil criteria: No

459985—Diamond Springs very stony sandy loam, 8 to 30 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,000 to 3,995 feet
Mean annual precipitation: 40 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 140 to 240 days

Map Unit Composition

Diamond Springs and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Diamond Springs Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Typic Haploxerults

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 8 to 30 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southeast
Aspect range: North to southwest (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Paralithic bedrock at a depth of 50 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 6.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6s
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 10 inches; very stony sandy loam
10 to 15 inches; sandy loam
15 to 29 inches; sandy clay loam
29 to 50 inches; sandy loam
50 to 54 inches; weathered bedrock

Minor Components

Kanaka soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459986—Diamond Springs very rocky sandy loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,000 to 3,995 feet
Mean annual precipitation: 40 inches
Mean annual air temperature: 54 degrees F
Frost-free period: 140 to 240 days

Map Unit Composition

Diamond Springs and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Description of Diamond Springs Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Typic Haploxerults

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: East
Aspect range: Northwest to south (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Paralithic bedrock at a depth of 50 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 6.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 10 inches; very stony sandy loam
10 to 15 inches; sandy loam

15 to 29 inches; sandy clay loam
29 to 50 inches; sandy loam
50 to 54 inches; weathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: Northwest to south (clockwise)

Minor Components

Kanaka soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Goulding soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

Aiken soils
Percent of map unit: 2 percent
Representative aspect: North
Meets hydric soil criteria: No

459995—Goulding very stony loam, 10 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 15—Central California Coast Range
Elevation: 1,495 to 4,995 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 150 to 250 days

Map Unit Composition

Goulding and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Goulding Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains

Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 10 to 30 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: South
Aspect range: Northeast to northwest (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 16 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6s
Meets hydric soil criteria: No
Hydrologic soil group: D

Typical Profile
0 to 5 inches; very stony loam
5 to 16 inches; gravelly loam
16 to 20 inches; unweathered bedrock

Minor Components

Auburn soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Diamond Springs soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459996—Goulding very rocky loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,495 to 4,995 feet
Mean annual precipitation: 30 inches

Mean annual air temperature: 55 degrees F
Frost-free period: 150 to 250 days

Map Unit Composition

Goulding and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Description of Goulding Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to west (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 16 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: D

Typical Profile
0 to 5 inches; very stony loam
5 to 16 inches; gravelly loam
16 to 20 inches; unweathered bedrock

Description of Rock Outcrop

Setting
Landform: Mountains
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Convex

Representative aspect: South
Aspect range: Northeast to west (clockwise)

Minor Components

Auburn soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Diamond Springs soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

459997—Goulding very rocky loam, 50 to 70 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,495 to 4,995 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 150 to 250 days

Map Unit Composition

Goulding and similar soils: 65 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Description of Goulding Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to west (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 16 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)

Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: D

Typical Profile
0 to 5 inches; very stony loam
5 to 16 inches; gravelly loam
16 to 20 inches; unweathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to south (clockwise)

Minor Components

Auburn soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Diamond Springs soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460004—Holland sandy loam, 15 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,800 to 5,600 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Holland and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Holland Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Slope range: 15 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southeast
Aspect range: East to west (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from granite
Restrictive feature(s): An abrupt textural change at a depth of 34 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 8.7 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 6 inches; sandy loam
6 to 34 inches; sandy clay loam
34 to 60 inches; sandy loam

Minor Components

Chaix soils
Percent of map unit: 7 percent
Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Auburn soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

460005—Holland sandy loam, 50 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,800 to 5,600 feet
Mean annual precipitation: 30 to 60 inches

Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Holland and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Holland Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Ultic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: North
Aspect range: West to east (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from granite
Restrictive feature(s): An abrupt textural change at a depth of 34 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 8.7 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 6 inches; sandy loam
6 to 34 inches; sandy clay loam
34 to 60 inches; sandy loam

Minor Components

Auberry soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 5 percent

Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460020—Josephine gravelly loam, 50 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 1,200 to 4,995 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 125 to 260 days

Map Unit Composition

Josephine and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Josephine Soil

Taxonomic Classification
Fine-loamy, mixed, mesic Typic Haploxerults

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Northeast
Aspect range: Northwest to southeast (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from metasedimentary rock
Restrictive feature(s): Paralithic bedrock at a depth of 60 to 64 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 7.0 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 4 inches; gravelly loam
4 to 45 inches; gravelly clay loam
45 to 60 inches; very stony clay loam
60 to 64 inches; weathered bedrock

Minor Components

Marpa soils
Percent of map unit: 7 percent
Representative aspect: North
Meets hydric soil criteria: No

Sheetiron soils
Percent of map unit: 6 percent
Representative aspect: North
Meets hydric soil criteria: No

Sites soils
Percent of map unit: 2 percent
Representative aspect: North
Meets hydric soil criteria: No

460028—Kanaka rocky sandy loam, 5 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 495 to 1,000 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 225 days

Map Unit Composition

Kanaka and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Description of Kanaka Soil

Taxonomic Classification
Coarse-loamy, mixed, thermic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 5 to 30 percent

Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: East
Aspect range: Northeast to west (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 48 to 52 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 5.8 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 4e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 9 inches; sandy loam
9 to 48 inches; sandy loam
48 to 52 inches; weathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: East
Aspect range: Northeast to west (clockwise)

Minor Components

Auberry soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Diamond Springs soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460029—Kanaka rocky sandy loam, 30 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 495 to 1,000 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 225 days

Map Unit Composition

Kanaka and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Description of Kanaka Soil

Taxonomic Classification
Coarse-loamy, mixed, thermic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southeast
Aspect range: Northeast to west (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 48 to 52 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 5.8 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 9 inches; sandy loam
9 to 48 inches; sandy loam
48 to 52 inches; weathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: Southeast
Aspect range: Northeast to west (clockwise)

Minor Components

Auberry soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Diamond Springs soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460030—Kanaka rocky sandy loam, 50 to 70 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 18—Sierra Nevada Foothills
Elevation: 495 to 1,000 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 225 days

Map Unit Composition

Kanaka and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Description of Kanaka Soil

Taxonomic Classification
Coarse-loamy, mixed, thermic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 70 percent
Down-slope shape: Concave

Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to west (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from metavolcanic rock
Restrictive feature(s): Lithic bedrock at a depth of 48 to 52 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 5.8 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: B

Typical Profile
0 to 9 inches; sandy loam
9 to 48 inches; sandy loam
48 to 52 inches; weathered bedrock

Description of Rock Outcrop

Setting
Landscape: Uplands
Landform: Mountains
Slope range: 50 to 70 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: South
Aspect range: Northeast to west (clockwise)

Minor Components

Auberry soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Chaix soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Diamond Springs soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460034—Kidd very rocky loam, 10 to 60 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 495 to 4,300 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 200 to 225 days

Map Unit Composition

Kidd and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Kidd Soil

Taxonomic Classification
Medial, mesic Lithic Vitrandepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 10 to 60 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: South
Aspect range: Northeast to west (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: Medium
Parent material: Residuum weathered from rhyolite
Restrictive feature(s): Lithic bedrock at a depth of 16 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.7 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: D

Typical Profile
0 to 8 inches; gravelly loam
8 to 16 inches; very gravelly sandy loam
16 to 20 inches; unweathered bedrock

Minor Components

Behemotosh soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Boomer soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Neuns soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460041—Landslides

Map Unit Setting

Major land resource area (MLRA): 22B—Southern Cascade Mountains

Map Unit Composition

Landslides: 85 percent
Dissimilar minor components: 15 percent

Description of Landslides

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: North
Aspect range: Southwest to east (clockwise)

Properties and Qualities
Runoff: Very low
Parent material: Residuum
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.2 inches)

Typical Profile
0 to 60 inches; fragmental material

Minor Components

Behemotosh soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Kilarc soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Sites soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Josephine soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

460054—Maymen very stony loam, 30 to 80 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 15—Central California Coast Range
Elevation: 1,000 to 3,995 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Maymen and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Maymen Soil

Taxonomic Classification
Loamy, mixed, mesic Dystric Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 75 percent
Down-slope shape: Convex
Across-slope shape: Convex
Representative aspect: South
Aspect range: Northeast to west (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from sedimentary rock
Restrictive feature(s): Lithic bedrock at a depth of 13 to 17 inches

Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Somewhat excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.5 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Manzanita, chamise, poison oak, coastal sage scrub oak, stork's bill, ripgut brome, soft chess, wild oat, and other shrubs, annual grasses, and annual forbs

Typical Profile
0 to 2 inches; very stony loam
2 to 13 inches; gravelly loam
13 to 17 inches; unweathered bedrock

Minor Components

Colluvial land
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

Josephine soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

Marpa soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

Millsholm soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

Sheetiron soils
Percent of map unit: 3 percent
Representative aspect: North
Meets hydric soil criteria: No

460062—Millsholm gravelly loam, 50 to 75 percent slopes

Map Unit Setting

Major land resource area (MLRA): 15—Central California Coast Range
Elevation: 295 to 3,395 feet
Mean annual precipitation: 20 inches

Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 200 to 320 days

Map Unit Composition

Millsholm and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Millsholm Soil

Taxonomic Classification
Loamy, mixed, thermic Lithic Xerochrepts

Setting
Landscape: Uplands
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Slope range: 50 to 75 percent
Down-slope shape: Concave
Across-slope shape: Convex
Representative aspect: Northwest
Aspect range: South to northeast (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from sedimentary rock
Restrictive feature(s): Lithic bedrock at a depth of 16 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 2.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7e
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Manzanita, wild oat, soft chess, ripgut brome, stork's bill, burclover, other perennial grasses, blue oak, other shrubs, and clover

Typical Profile
0 to 16 inches; gravelly loam
16 to 20 inches; unweathered bedrock

Minor Components

Gaviota soils
Percent of map unit: 8 percent
Representative aspect: North
Meets hydric soil criteria: No

Millsap soils
Percent of map unit: 7 percent
Representative aspect: North
Meets hydric soil criteria: No

460076—Neuns very stony loam, 8 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 2,495 to 6,000 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 130 days

Map Unit Composition

Neuns and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Neuns Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Mountain flank
Slope range: 15 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Northeast
Aspect range: Northwest to southeast (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 23 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.6 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6s
Meets hydric soil criteria: No
Hydrologic soil group: C

Typical Profile
0 to 5 inches; very stony loam
5 to 23 inches; gravelly silty clay loam
23 to 27 inches; unweathered bedrock

Minor Components

Boomer soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460077—Neuns very stony loam, 50 to 80 percent slopes

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 2,495 to 6,000 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 130 days

Map Unit Composition

Neuns and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Neuns Soil

Taxonomic Classification
Loamy-skeletal, mixed, mesic Dystric Xerochrepts

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 80 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Northeast
Aspect range: West to southeast (clockwise)
Soil temperature class: Mesic
Soil temperature regime: Mesic

Properties and Qualities
Runoff: High
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 23 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)

Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.6 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: C

Typical Profile
0 to 5 inches; very stony loam
5 to 23 inches; gravelly silty clay loam
23 to 27 inches; unweathered bedrock

Minor Components

Boomer soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460080—Newtown gravelly loam, 30 to 50 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 600 to 1,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 200 to 250 days

Map Unit Composition

Newtown and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Newtown Soil

Taxonomic Classification
Fine, montmorillonitic, thermic Ultic Haploxeralfs

Setting
Landscape: River valleys
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread and riser
Slope range: 30 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: East
Aspect range: Northwest to southwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Very high
Parent material: Alluvium
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: High (about 7.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: High (about 11.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: C

Vegetation
Existing plants: Manzanita, wild oat, soft chess, ripgut brome, stork's bill, Wyeth biscuitroot, blue oak, interior live oak, and clover

Typical Profile
0 to 8 inches; gravelly loam
8 to 18 inches; very gravelly clay loam
18 to 35 inches; clay loam
35 to 65 inches; silty clay loam
65 to 72 inches; gravelly silty clay loam

Minor Components

Perkins soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Red Bluff soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460081—Newtown stony loam, 8 to 50 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 600 to 1,000 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 200 to 250 days

Map Unit Composition

Newtown and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Newtown Soil

Taxonomic Classification
Fine, montmorillonitic, thermic Ultic Haploxeralfs

Setting
Landscape: River valleys
Landform: Terraces
Landform position (two-dimensional): Shoulder and backslope
Landform position (three-dimensional): Tread and riser
Slope range: 8 to 50 percent
Down-slope shape: Concave
Across-slope shape: Concave
Representative aspect: Southwest
Aspect range: East to northwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Very high
Parent material: Alluvium
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: High (about 7.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: High (about 11.1 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 6e
Meets hydric soil criteria: No
Hydrologic soil group: C

Vegetation
Existing plants: Manzanita, wild oat, soft chess, ripgut brome, stork's bill, Wyeth biscuitroot, blue oak, interior live oak, and clover

Typical Profile
0 to 8 inches; stony loam
8 to 18 inches; very gravelly clay loam
18 to 35 inches; clay loam
35 to 65 inches; silty clay loam
65 to 72 inches; gravelly silty clay loam

Minor Components

Perkins soils
Percent of map unit: 10 percent
Representative aspect: North
Meets hydric soil criteria: No

Red Bluff soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460098—Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 95 to 1,495 feet
Mean annual precipitation: 14 to 25 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 230 to 320 days

Map Unit Composition

Red Bluff and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Red Bluff Soil

Taxonomic Classification
Fine, mixed, thermic Abruptic Durixeralfs

Setting
Landscape: Hills
Landform: Terraces
Landform position (two-dimensional): Summit, shoulder, and backslope
Landform position (three-dimensional): Side slope
Slope range: 3 to 8 percent
Down-slope shape: Linear
Across-slope shape: Linear
Representative aspect: Southeast
Aspect range: Northwest to west (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: High
Parent material: Alluvium
Restrictive feature(s): A strongly cemented duripan at a depth of 30 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Moderately well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.8 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 3e
Meets hydric soil criteria: No
Hydrologic soil group: C

Vegetation
Existing plants: Clover, miniature lupine, Mediterranean barley, foxtail fescue, stork's bill, red brome, ripgut brome, soft chess, and wild oat

Typical Profile
0 to 6 inches; gravelly loam

6 to 24 inches; gravelly clay loam
24 to 30 inches; gravelly clay loam
30 to 40 inches; indurated bedrock

Minor Components

Newtown soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Perkins soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Redding soils
Percent of map unit: 4 percent
Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 1 percent
Landform: Depressions
Representative aspect: North
Meets hydric soil criteria: Yes

460103—Reiff sandy loam, channeled, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 29.5 to 499 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 275 days

Map Unit Composition

Reiff and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Reiff Soil

Taxonomic Classification
Coarse-loamy, mixed, nonacid, thermic Mollic Xerofluvents

Setting
Landscape: River valleys
Landform: Fans
Landform position (two-dimensional): Summit, shoulder, and backslope
Landform position (three-dimensional): Tread and riser
Slope range: 0 to 8 percent
Down-slope shape: Linear
Across-slope shape: Linear
Representative aspect: South
Aspect range: East to southwest (clockwise)

Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Very low
Parent material: Alluvium
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Moderate (about 6.3 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 4w
Meets hydric soil criteria: Yes
Hydrologic soil group: B

Typical Profile
0 to 18 inches; sandy loam
18 to 43 inches; stratified sandy loam to loam
43 to 60 inches; stratified sand to loamy sand

Minor Components

Anderson soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Tujunga soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Unnamed soils
Percent of map unit: 5 percent
Landform: Flood plains
Representative aspect: North
Meets hydric soil criteria: Yes

460112—Riverwash

Map Unit Setting

Major land resource area (MLRA): 17—Sacramento and San Joaquin Valleys
Elevation: 695 to 2,900 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Riverwash: 100 percent

Description of Riverwash

Setting
Landscape: River valleys
Landform: Drainageways
Landform position (three-dimensional): Tread
Slope range: 0 to 5 percent
Down-slope shape: Concave
Across-slope shape: Linear
Representative aspect: South
Aspect range: North to northwest (clockwise)

Properties and Qualities
Runoff: Very low
Parent material: Gravelly alluvium
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Water table (depth, kind): At the soil surface; perched (see table 19)
Drainage class: Excessively drained
Shrink-swell potential: Low (about 1.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 1.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 8
Meets hydric soil criteria: Yes
Hydrologic soil group: D

Typical Profile
0 to 6 inches; very gravelly sand
6 to 60 inches; stratified very gravelly coarse sand to gravelly sand

460113—Rockland

Map Unit Setting

Major land resource area (MLRA): 5—Siskiyou-Trinity Area
Elevation: 645 to 3,995 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Rockland: 100 percent

Description of Rockland

Setting
Landscape: Uplands
Slope range: 15 to 70 percent
Down-slope shape: Concave
Across-slope shape: Concave

Representative aspect: Southwest
Aspect range: East to northwest (clockwise)

Properties and Qualities
Parent material: Residuum
Restrictive feature(s): Lithic bedrock at a depth of 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 0 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 8s
Meets hydric soil criteria: No
Hydrologic soil group: D

Typical Profile
0 to 10 inches; unweathered bedrock

460140—Stonyford very stony loam, 30 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 15—Central California Coast Range
Elevation: 800 to 2,995 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Stonyford and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Stonyford Soil

Taxonomic Classification
Loamy, mixed, thermic Lithic Mollic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 30 to 50 percent
Down-slope shape: Convex
Across-slope shape: Convex
Representative aspect: Southeast
Aspect range: Northeast to southwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Chamise, manzanita, wild oat, soft chess, ripgut brome, red brome, ceanothus, coastal sage scrub oak, and needlegrass

Typical Profile
0 to 9 inches; very stony loam
9 to 24 inches; gravelly clay loam
24 to 28 inches; unweathered bedrock

Minor Components

Auburn soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Boomer soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460141—Stonyford very stony loam, 50 to 75 percent slopes

Map Unit Setting

Major land resource area (MLRA): 15—Central California Coast Range
Elevation: 800 to 2,995 feet
Mean annual precipitation: 30 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Stonyford and similar soils: 85 percent
Dissimilar minor components: 15 percent

Description of Stonyford Soil

Taxonomic Classification
Loamy, mixed, thermic Lithic Mollic Haploxeralfs

Setting
Landscape: Uplands
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountain flank
Slope range: 50 to 75 percent
Down-slope shape: Convex
Across-slope shape: Convex
Representative aspect: Southeast
Aspect range: North to southwest (clockwise)
Soil temperature class: Thermic
Soil temperature regime: Thermic

Properties and Qualities
Runoff: Very high
Parent material: Residuum weathered from greenstone
Restrictive feature(s): Lithic bedrock at a depth of 24 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Well drained
Shrink-swell potential: Moderate (about 4.5 LEP)
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Low (about 3.2 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 7s
Meets hydric soil criteria: No
Hydrologic soil group: D

Vegetation
Existing plants: Chamise, manzanita, wild oat, soft chess, ripgut brome, red brome, ceanothus, coastal sage scrub oak, and needlegrass

Typical Profile
0 to 9 inches; very stony loam
9 to 24 inches; gravelly clay loam
24 to 28 inches; unweathered bedrock

Minor Components

Auburn soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Boomer soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

Goulding soils
Percent of map unit: 5 percent
Representative aspect: North
Meets hydric soil criteria: No

460147—Tailings and placer diggings

Map Unit Setting

Major land resource area (MLRA): 15—Central California Coast Range

Map Unit Composition

Tailings and placer diggings: 95 percent
Dissimilar minor components: 5 percent

Description of Tailings and Placer Diggings

Setting
Landscape: River valleys
Landform: Flood plains
Slope range: 0 to 15 percent
Down-slope shape: Linear
Across-slope shape: Linear
Representative aspect: Southeast
Aspect range: North to southwest (clockwise)

Properties and Qualities
Parent material: Mine spoil or earthy fill
Restrictive feature(s): None within a depth of 60 inches
Frequency of flooding: None
Frequency of ponding: None
Depth to water table: More than 72 inches
Drainage class: Excessively drained
Salinity maximum: Not saline
Sodicity maximum: Not sodic
Calcium carbonate equivalent (maximum weight percentage): 0
Available water capacity: Very low (about 0 inches)

Interpretive Groups
Land capability subclass (nonirrigated): 8s
Meets hydric soil criteria: No

Typical Profile
0 to 60 inches; variable material

Minor Components

Unnamed soils
Percent of map unit: 5 percent
Landform: Flood plains

Representative aspect: North
Meets hydric soil criteria: Yes

1395761—Water

Map Unit Composition

Water: 100 percent

Description of Water

This map unit consists of the Whiskeytown Reservoir.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the Whiskeytown National Recreation Area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils as rangeland and as sites for buildings, sanitary facilities, highways and other transportation systems, and recreational facilities. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the park. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the park for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, slightly limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately well suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact

on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA-SCS, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this park is given in the section “Detailed Soil Map Units” and in table 2.

Prime and Other Important Farmland

Table 3 lists the map units in the park that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed

according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Hydric Soils

Table 4 lists the map unit components that are rated as hydric soils in the park. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; USDA-NRCS, 2010).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 2010) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in “Field Indicators of Hydric Soils in the United States” (USDA-NRCS, 2010).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2) a water table at a depth of 0.5 foot or less during the growing season if saturated hydraulic conductivity (K_{sat}) is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3) a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic conductivity (K_{sat}) is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for periods of long or very long duration during the growing season.
4. Soils that are frequently flooded for periods of long or very long duration during the growing season.

Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 5 shows, for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, and unfavorable years. An explanation of the column headings in table 5 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the “Field Office Technical Guide,” which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year’s growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well

below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the “National Range and Pasture Handbook,” which is available in local offices of the Natural Resources Conservation Service.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Land Management

In table 6, parts I through IV, interpretive ratings are given for various aspects of land management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified land management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified land management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for *fire damage* and *seedling mortality* are expressed as low, moderate, and high. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

Rating class terms for *hazard of erosion* are expressed as slight, moderate, severe, and very severe. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for erosion is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for land management practices.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity

index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of planting equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in areas where 50 to 75 percent of the surface has been exposed by different kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

The soils of the park are rated in table 7, parts I and II, according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in table 7 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Foot traffic and equestrian trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Mountain bike and off-road vehicle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, depth to a water table, ponding, slope, flooding, and texture of the surface layer.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, landscaping, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for septic tank absorption fields and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, ponds, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 8 shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Roads and Streets, Shallow Excavations, and Landscaping

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 9 shows the degree and kind of soil limitations that affect local roads and streets, shallow excavations, and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Landscaping requires soils on which turf, trees, and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sewage Disposal

Table 10 shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance

can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches or between a depth of 24 inches and a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (K_{sat}), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (K_{sat}), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (K_{sat}) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a K_{sat} rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Source of Gravel and Sand

Table 11 gives information about the soils as potential sources of gravel and sand. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and sand are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. Only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil

as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness. The ratings are for the whole soil, from the surface to a depth of about 6 feet.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

Source of Reclamation Material, Roadfill, and Topsoil

Table 12 gives information about the soils as potential sources of reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. Numerical ratings between 0.00 and 0.99 are given after the specified features. These numbers indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments. The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected

by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Ponds and Embankments

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (K_{sat}) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, K_{sat} of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

Table 14 gives the engineering classifications and the range of engineering properties for the layers of each soil in the park.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.”

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement,

the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Soil Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the park. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (K_{sat}), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water

and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low,* a change of less than 3 percent; *moderate,* 3 to 6 percent; *high,* 6 to 9 percent; and *very high,* greater than 9 percent.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion Properties

Table 16 shows estimates of some erosion factors that affect a soil's potential for different uses. These estimates are given for each layer of every soil for K factors and are given as one rating for the entire soil for the T factor, the wind erodibility group, and the wind erodibility index. Values are reported for each soil in the park. Estimates are based on field observations and on test data for these and similar soils.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Soil erosion factors Kw and Kf quantify soil detachment by runoff and raindrop impact. These erosion factors are indexes used to predict the long-term average soil loss from sheet and rill erosion under crop systems and conservation techniques. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and K_{sat}. Values

of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

The procedure for determining the Kf factor is outlined in Agriculture Handbook 703, "Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)," USDA, Agricultural Research Service, 1997.

Depth to the upper and lower boundaries of each layer is indicated.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments. In horizons where total rock fragments are 15 percent or more, by volume, the Kw factor is always less than the Kf factor.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size. Soil horizons that do not have rock fragments are assigned equal Kw and Kf factors.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Total Soil Carbon

Table 17 gives estimates of total soil carbon. Soil carbon occurs as organic and inorganic carbon.

Soil organic carbon (SOC) is carbon (C) in soil that originated from a biological source, such as plants, animals, or micro-organisms. SOC is found in both organic and mineral soil layers. The term "soil organic carbon" refers only to the carbon occurring in soil organic matter (SOM). Soil organic carbon makes up about one-half the weight of soil organic matter. The rest of SOM is mostly oxygen, nitrogen, and hydrogen.

Soil inorganic carbon (SIC) is carbon found in soil carbonates, typically as calcium carbonate layers in the soil or as clay-sized fractions throughout the soil. Carbonates in soils are most common in areas where evaporation rates exceed precipitation, as is the case in most desert environments. Typically, the carbonates accumulated from carbonatic dust or from solution during periods of wetter climates. Soil inorganic carbon also occurs in soils that formed in marl in all regions of the country.

The SOC and SIC contents are reported in kilograms per square meter to a depth of 2 meters or to a representative depth of either hard bedrock or a cemented horizon. The SOC and SIC values are on a whole soil basis, corrected for rock fragments.

SOC can be an indicator of overall soil fertility and soil quality that affects ecosystem function. SOM is the main reservoir for most plant nutrients, such as phosphorus and nitrogen. Managing for SOC by managing for SOM increases the content of these elements and improves soil resiliency.

Soil organic matter binds soil particles together and thus increases soil porosity and water infiltration and allows better root penetration and waterflow into the soil. Greater inflow of water reduces the hazard of erosion and the rate of surface water runoff.

Greater SOC levels improve not only soil quality but also the quality of air and water. Soil acts as a filter and improves water quality. Fertile soils that support plant life remove CO_2 from the atmosphere and increase oxygen levels through photosynthesis. Maintaining the level of soil organic carbon reduces C release into the atmosphere and thus can lessen the effects of global warming.

SIC influences the types of plants that will grow. High SIC levels are commonly associated with a higher soil pH, which limits the types of plants that will thrive.

Like SOM, soil carbonates, the source of SIC, also bind soil particles together. They fill voids in the soil and thus can reduce soil porosity. Compacted soil carbonates may restrict root penetration and waterflow into the soil.

Chemical Soil Properties

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the park. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of exchangeable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Water Features

Table 19 gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

Water table refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent

collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (K_{sat}), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Formation and Classification of the Soils

By Susan Burlew Southard, Natural Resources Conservation Service.

This section relates the soils in Whiskeytown National Recreation Area to the major factors of soil formation and describes the system of soil classification.

Factors of Soil Formation

Soil covers the surface of the earth as a three-dimensional body of varying depth and is made up of different proportions of organic and mineral material, pore space with gases, and water. Soils differ in their appearance, productivity, and management requirements due to their chemical and physical properties. The characteristics and properties of soils are determined by physical and chemical processes that result from the interaction of five soil-forming factors. These factors of soil formation are interdependent, and few generalizations can be made regarding any one factor unless the effects of the other factors are known. The term “pedogenesis” is often used to connote the process of soil formation.

The interacting soil-forming factors are parent material, climate, organisms, time, and relief or topography. *Parent material* is the source material in which soils formed. Soils are influenced by the texture and structure of the parent material and its mineralogical and chemical composition. *Climate* is predominantly the temperature and kind and amount of precipitation. *Organisms* are the plants and other organisms living in and on the soil, including humans. *Time* refers to how long the soil-forming factors have been operating. *Relief* or *topography* is the shape and elevation of the landscape. It affects internal and external soil properties, such as soil drainage, aeration, susceptibility to erosion, and the soil’s exposure to the sun and wind (Jenny, 1941). The process of soil formation is a sequence of events, involving biogeochemical reactions that are energized by climate and spatially related to relief or topography (Buol and others, 2011). The physical and chemical properties of soil are altered by these reactions over time.

The influence of any one of these factors varies among all parks and within localities of a particular park. Soils may differ significantly from place to place in a park and within very short distances. In some instances parks may have vast stretches of the same type of soil because of uniform soil-forming factors.

Parent Material

The unconsolidated mass in which soils form is called parent material. Parent material is a product of weathering of underlying bedrock or weathering of material that has been transported or formed in place. Organic soils are an example of soils forming in place. Weathering refers to the chemical and physical disintegration and decomposition of parent material. Few soils weather directly from the underlying rocks. More commonly, soils form in materials that have moved in from elsewhere. Soils generally have a dominant kind of parent material but are influenced by other types of parent material. Material may have been moved only a few feet by gravity (colluvial parent material) or transported long distances by wind (eolian parent material) or

Figure 1.—A road cut along South Shore Drive showing Boomer soils. Boomer soils are characteristically red and deep. Note that while the road cut is steep, the soil is forming above on a level surface (upper right-hand side of photo). The less steep surface allows greater water infiltration, which increases weathering intensity.

water (alluvial parent material). Soils are said to have “residual” parent material if they formed directly from underlying rocks. Soils formed in residuum may have the same general chemistry as the original rocks depending on the degree of weathering that has occurred.

Igneous and metamorphic rocks dominate the geology at Whiskeytown National Recreation Area (NRA). The park is part of the Central California Coast Range Major Land Resource Area (MLRA) but the soils mapped here also have the characteristics of the soils in the Sierra Nevada Foothills MLRA. Whiskeytown NRA has been influenced by compressional plate tectonics as belts of rocks were lapped onto the continental margin. These belts formed parallel ranges and valleys that are underlain by folded and faulted metamorphic rocks. Peaks tend to be rounded, such as Shasta Bally, and landslides are a dominant geomorphic process.

The soils in Whiskeytown National Recreation Area formed from combinations of residuum and colluvium. The type of soils forming in the park depends in part on the degree of metamorphism and the resultant altered chemistry and physical properties of the rocks. This dependence on parent material can be seen by observing the differences in soil depth and color along road cuts within the park. Some parent materials are soft and break down into smaller rocks easily, while others are much harder and resist weathering processes. Different soils commonly form in different kinds of parent material even when the difference in parent material may appear to be quite insignificant.

Boomer soils are associated with the weathering of metavolcanic rocks, such as schist. As observed in some road cuts, these soils are very red and very deep (fig. 1). The red color is due to the oxidation of iron. Areas of these soils and the obvious red road cuts can be seen along South Shore Drive above Davis Gulch Trail. The areas tend to be less steep than other areas in the park. The amount of moisture entering the

soil on level slopes allows for greater weathering within the soil profile. Boomer soils have a pronounced zone of clay accumulation in the subsoil, called an argillic horizon.

Depending on the degree of metamorphism, some metamorphic rocks weather more easily than others. The shallow Goulding and Auburn soils formed from Copley Greenstone and are thin because the rocks may be more resistant. Additionally, the steeper slopes on which these two soils are mapped limit the accumulation of soil. On steep slopes, water infiltration is reduced, which reduces the amount of weathering, and the soil tends to erode. Figure 2 shows an area of Copley Greenstone along Highway 299 where Goulding and Auburn soils are mapped. Because of the overall steepness of the terrain in the park, all soils, in addition to having formed in residuum, have been influenced by gravity to varying extents. Figure 3 depicts an area of Goulding soils mapped around the Oak Bottom campground.

Areas near the Visitor Center are mapped as Chaix coarse sandy loam and Chaix sandy loam. These soils occur in a part of the park that transitions out of the lapped metamorphic belt to the granitic batholith associated with Shasta Bally. Chaix soils typically form in granite or granodiorite. Chaix soils surround the Visitor Center and can be observed along J.F. Kennedy Memorial Drive. Igneous rocks in Whiskeytown NRA are granite, granodiorite, and rhyolite. Figure 4 shows a road cut in an area mapped as Chaix soils between the park headquarters and the Visitor Center. Note the light color of the exposure.

Kidd soils formed from rhyolite that has been slightly metamorphosed. These soils are shallow, typically pale in color, and have little horizon development. Figure 5 shows a road cut in an area mapped as Kidd soils along Highway 299.

Eolian parent material, such as windblown sand, is a type of parent material. Windblown loess, which has been blown for long distances, consists mainly of silt-sized particles. None of the soils in Whiskeytown NRA developed in loess.

Alluvium is the type of parent material deposited by water. Sediments along oceans, rivers, and streams have different textures, depending on whether the water moves

Figure 2.—A major road cut along Highway 299 exposing Copley Greenstone. Auburn and Goulding soils are mapped in this area. The steepness of the terrain limits soil depth.

Figure 3.—An area mapped as Goulding soils around the Oak Bottom campground and boat ramp. Goulding soils are not as red as Boomer soils and typically have an eroded surface.

quickly or slowly. Fast-moving water deposits gravel, rocks, and sand. Slow-moving water and lakes leave fine textured material (clay and silt) when sediments in the water settle out. Only one soil in the park, the Reiff taxadjunct, formed from alluvium. This soil has little soil development and little horizonation. It is mapped in a small area along Clear Creek.

Climate

Differences in climate can result in differences in soils. Temperature and moisture influence soil formation and are the two most commonly measured features of climate. Weathering is most active when soils are moist and warm since these soil conditions are conducive to rapid chemical reactions. Cooler temperatures result in slower chemical reactions. While average temperatures and precipitation are important, the extremes of weather in any given locale also play a major role in soil formation.

During periods of rainfall or snowmelt, water carrying dissolved or suspended solids moves through the soil in a process called leaching. The leaching process becomes active with the onset of rainfall or snowmelt. Different temperature and moisture amounts cause different patterns of weathering and leaching in the soil. Seasonal and daily changes in temperature affect moisture effectiveness, biological activity, rates of chemical reactions, and kinds of vegetation.

Present-day climate variations are the result of topography and relief. In most areas of the United States, temperature generally decreases with elevation and precipitation generally increases with elevation. As the amount of precipitation increases, the extent of leaching and the amount of vegetation generally increase to a point where they then decrease because of decreasing temperatures. Colder temperatures result in less leaching because of decreased microbial growth, decreased vegetation, and possibly frozen soil. Fluctuations in temperature and moisture affect the rate of organic matter decomposition and accumulation and the weathering of minerals. For these

reasons, cycling of bases is pronounced in areas of warm climate and large amounts of vegetation.

Shasta Bally in Whiskeytown NRA is rounded weathered granite and rises to more than 6,000 feet. Soils mapped on Shasta Bally are predominantly Chaix and Corbett soils associated with large amounts of rock outcrop. Corbett soils are moderately deep sandy soils that formed in residuum and colluvium on steep mountain slopes. They are at the highest elevations on Shasta Bally and are cold, with a mean annual soil temperature between 39 to 46 degrees F. Chaix soils are also moderately deep and formed in residuum and colluvium but are mapped at the slightly lower elevations or on south-facing slopes. The soil temperature regime of Chaix soils, because of elevation and/or southern exposure, is between 47 to 59 degrees F. Both Chaix and Corbett soils formed over weathered granitic rock. Figure 6 illustrates the greater snowfall at Shasta Bally's highest elevations where Corbett soils are mapped.

Because of the climate, Whiskeytown NRA is susceptible to wildfires. Wildfires can alter the physical and chemical properties of the soil. Erosion may be accelerated by the loss of vegetation and surface ground cover. Heavy precipitation loosens rock and soil on slopes that lack the stabilizing effect of plant roots. Unconsolidated rock and soils that are suddenly saturated with water can detach and slide down slope, causing a slump or flow.

Because the granite of the Shasta Bally batholith is rich in mica, slopes are unstable especially during times of heavy precipitation and after wildfires. The Shasta Bally Granite, which underlies a large part of the park, tends to weather deeply. Planes of weakness which develop during the weathering process may slide when wet. Forest fires, which reduce the amount of vegetation holding soil in place, followed by rainfall, which wets the planes of weakness, create significant slope instability. This results in the mass movement of rock and soils. Mass movement along many of the roads in

Figure 4.—A road cut near the Visitor Center showing the lighter colored soils associated with granite or granodiorite. Chaix soils are mapped in this area. These soils are moderately deep and have very little horizon development.

Figure 5.—A road cut showing the metavolcanic rock called Balaklala Rhyolite. In Whiskeytown National Recreation Area, Kidd soils are associated with Balaklala Rhyolite that has been slightly metamorphosed.

the park results from erosion associated with seasonal thunderstorms and high winter rainfall. The park has an average annual precipitation of 65 inches.

Organisms

Plants, animals, micro-organisms, and humans affect the formation and shape of soils. Flora, such as fungi and bacteria, can help to decompose organic matter and add nutrients to the soil. Animals and micro-organisms mix soils and form burrows and pores. Plant roots open channels in the soils. Abandoned tunnels commonly are filled with loose material from the overlying horizons and transmit water more readily than the surrounding undisturbed soil material.

Different types of roots have different effects on soils. Grass roots are fibrous near the surface and easily decompose, adding organic matter to the soil. Fine grass roots can extend below the surface for many feet. Plant roots also help to develop soil structure and aggregate stability. Vegetation increases soil stability by protecting the surface against erosion. Taproots open pathways through dense layers. Micro-organisms affect chemical exchanges between roots and soil. Trees help break up rocks with their growing roots, resulting in channels that increase water penetration. Besides the mechanical breaking of rocks by their large roots, the trees capture energy and substance through photosynthesis, by the decomposition of plant residue, and by forming organic-mineral complexes that are recycled many times within the ecosystem (Buol and others, 2011).

The native vegetation depends on climate, topography, and biological factors plus many soil factors, such as soil density, depth, chemistry, temperature, and moisture. Leaves from plants fall to the surface and decompose on the soil. Organisms decompose these leaves and mix them with the upper part of the soil, resulting in the cycling of nutrients and energy back to vegetation. The leaf litter, whether leaves or needles, helps prevent nutrient loss, conserves soil moisture, reduces raindrop impact, and limits frost penetration.

Burning of the common chaparral vegetation of Whiskeytown NRA may result in fire-induced soil hydrophobicity. Hydrophobic soils repel water. A thin layer of soil at or below the mineral soil surface can become hydrophobic after intense heating. The hydrophobic layer is the result of a waxy substance that is derived from volatile plant oils that burn during a hot fire. The oils and other plant organic compounds may vaporize then recondense in the cooler soil just beneath the surface. The waxy layer of hydrophobic soil that forms prevents water absorption. In areas of hydrophobic soil, since fire has already destroyed the ground cover, runoff and erosion are even worse. Clay soils are the most resistant to developing hydrophobicity, while the predominantly sandy or loamy soils of Whiskeytown NRA are much more susceptible.

Humans have mixed and altered the soils of the park in some areas. The Klamath Mountains of northeastern California were one of the focal points of the 1849 Gold Rush. The region is the second most productive gold district in California. Prospectors and miners were attracted to the area by the gold and sulfide deposits associated with igneous intrusions. In Whiskeytown NRA, areas of mine spoils on hillsides and placer tailings in valley alluvium have been identified on soil maps as miscellaneous land types.

Time

Time for parent material, climate, organisms, and topography to interact is also a soil-forming factor. Soil formation processes are continuous. Over time, soils exhibit features that reflect the other soil-forming factors. Recently deposited material, such as material deposited by a flood, exhibits no features from soil development activities. The previous soil surface and underlying horizons become buried. The time clock resets for these soils. The different horizons in a soil profile and the degree of development can be directly related to time.

Most of the soils at high elevations in Whiskeytown NRA, such as Corbett, have few distinctive characteristics and no diagnostic subsurface horizons. Soils, such as

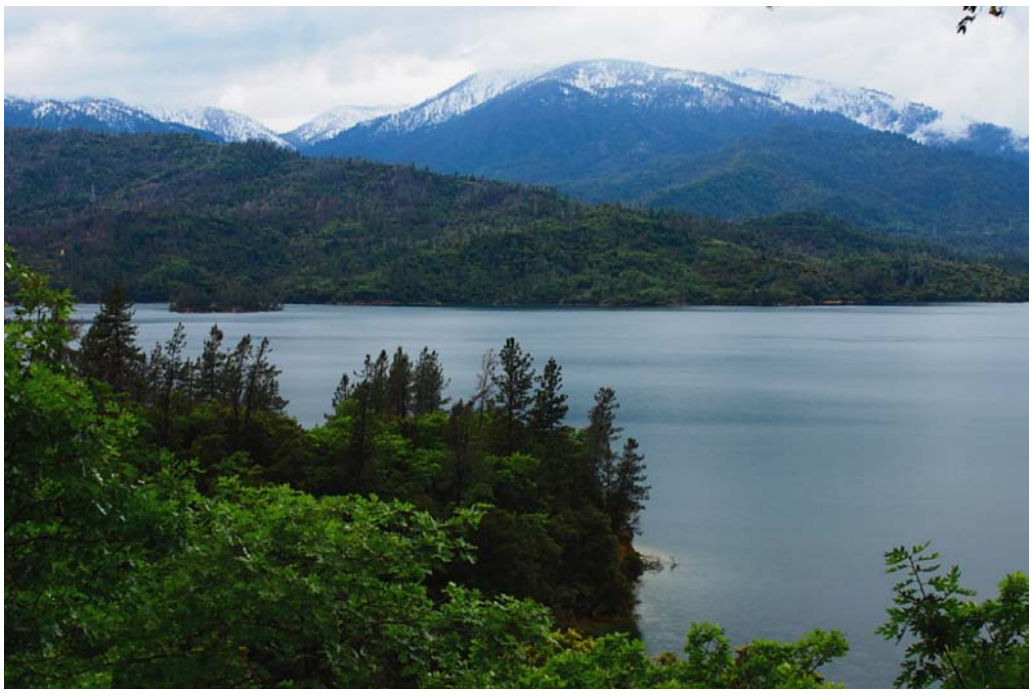

Figure 6.—Corbett soils are mapped at the highest elevations of Shasta Bally (in the background) where a considerable amount of precipitation falls as snow.

Boomer, that have argillic diagnostic subsurface horizons are on more stable surfaces and have had the time to develop distinctive profile characteristics. The steep slopes in the park hinder soil development. Many soils, such as Auburn, Goulding, Maymen, Millsholm, Stonyford, and Kidd, are shallow and do not have conditions conducive to forming deep profiles.

Relief and Topography

Topography refers to the shape of the landscape, and relief refers to differences in elevation. The overall landscape in a park, whether it consists of rolling hills, or steep mountains, is the result of erosion and constructional processes. These processes may have occurred in response to changes in climate, fluctuating sea levels, and/or tectonic activities. Cyclic periods of landscape stability and instability influence the types of soils that form on the landscape.

Slope and aspect of the overall landscape can affect the moisture and temperature of the soil. Steep slopes facing the sun are warmer. They may be eroded and lose their topsoil as they form. Thus, these soils may be thinner than the more nearly level ones that receive deposits from areas upslope. Deeper, darker soils occur on the bottom land. Soil-forming factors continue to affect soils even on stable landscapes. Materials are deposited on the surface, and materials are blown or washed away from the surface. Additions, removals, and alterations are slow or rapid, depending on climate, landscape position, and biological activity.

Classification of the Soils

Soils are named and classified on the basis of physical and chemical properties in their horizons (layers). Color, texture, structure, and other properties of the soil to a depth of 2 meters are used to key the soil into a classification system. This system helps people to use soil information and also provides a common language for scientists.

Soils and their horizons differ from one another, depending on how and when they formed. Soil scientists use the five soil-forming factors to help predict where different soils may occur. The degree and expression of the soil horizons reflect the extent of interaction of the soil-forming factors with one or more of the soil-forming processes (Simonson, 1959).

When mapping soils, a soil scientist looks for areas with similar soil-forming factors to find similar soils. The properties of the soils are described. Soils with the same kind of properties are given taxonomic names. Soils are classified, mapped, and interpreted on the basis of various kinds of soil horizons and their arrangement. The distribution of soil orders corresponds with the general patterns of the soil-forming factors within the park.

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2010). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The categories are defined in the following paragraphs.

ORDER. Soil taxonomy at the highest hierarchical level identifies 12 soil orders. The names for the orders and taxonomic soil properties relate to Greek, Latin, or other root words that reveal something about the soil. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. Sixty-four suborders

are recognized at the next level of classification. The last syllable in the name of a suborder indicates the order. An example is Psamment (*Psamm,* meaning sand, plus *ent,* from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. There are about 300 great groups. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Xeropsamment (*Xer,* meaning dry, plus *Psamment,* the suborder of the Entisols that is sandy).

SUBGROUP. There are more than 2,400 subgroups. Each great group has a typic subgroup. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Other subgroups are intergrades or extragrades. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Dystric* identifies the subgroup that typifies the infertile great group. An example is Dystric Xeropsamments.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties for family placement are those of horizons below a traditional agronomic plow depth. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is mixed, frigid Dystric Xeropsamments.

SERIES. The soil series is the lowest category in the soil classification system. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The Corett series mapped on Shasta Bally is a mixed, frigid Dystric Xeropsamment.

Most parks are mapped to the series level. The names of soil series are selected by the soil scientists during the course of mapping. The series names are commonly geographic place names or are coined. Because of access limitations and soil variability, soils in some remote areas are classified at the great group or subgroup level.

Table 21 indicates the order, suborder, great group, subgroup, and family of the soil series in the park.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building

up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Leaching. The removal of soluble material from soil or other material by percolating water.

LEP. See Linear extensibility percent.

Linear extensibility (LE). Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Linear extensibility percent. Refers to the percent change in linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.
Low strength. The soil is not strong enough to support loads.
Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.
Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.
Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.
Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.
Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)
Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.
Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.
Parent material. The unconsolidated organic and mineral material in which soil forms.
Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.
Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
Percolation. The movement of water through the soil.
Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.
pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth’s surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Tables

Table 1.—Soil Legend

Map unit symbol and map unit name	Components in map unit	Percent of map unit
459936:		
Auburn loam, 8 to 30 percent slopes	Auburn	85
	Tailings and placer diggings	10
	Auberry	5
459937:		
Auburn very stony loam, 8 to 30 percent slopes	Auburn	85
	Unnamed soils	10
	Tailings and placer diggings	5
459939:		
Auburn very stony clay loam, 30 to 50 percent slopes, eroded	Auburn	85
	Stonyford	8
	Unnamed soils	7
459940:		
Auburn very rocky clay loam, 50 to 70 percent slopes, eroded	Auburn	75
	Rock outcrop	15
	Stonyford	5
	Unnamed soils	5
459941:		
Behemotosh very stony loam, 8 to 30 percent slopes	Behemotosh	85
	Kidd	8
	Boomer	4
	Neuns	3
459942:		
Behemotosh very stony loam, 30 to 50 percent slopes, eroded	Behemotosh	85
	Kidd	8
	Boomer	4
	Neuns	3
459943:		
Behemotosh very rocky loam, 50 to 70 percent slopes, eroded	Behemotosh	65
	Rock outcrop	15
	Kidd	10
	Boomer	5
	Neuns	5

Table 1.—Soil Legend—Continued

Map unit symbol and map unit name	Components in map unit	Percent of map unit
459945:		
Boomer gravelly loam, 15 to 30 percent slopes	Boomer	85
	Goulding	5
	Neuns	5
	Stonyford	5
459946:		
Boomer gravelly loam, 30 to 50 percent slopes	Boomer	85
	Goulding	5
	Neuns	5
	Stonyford	5
459947:		
Boomer very stony loam, 50 to 70 percent slopes	Boomer	85
	Goulding	5
	Neuns	5
	Stonyford	5
459948:		
Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded	Boomer	85
	Goulding	5
	Neuns	5
	Stonyford	5
459950:		
Chaix coarse sandy loam, 30 to 50 percent slopes, severely eroded	Chaix	85
	Holland	6
	Kanaka	6
	Sierra	3
459951:		
Chaix coarse sandy loam, 50 to 70 percent slopes, severely eroded	Chaix	85
	Holland	6
	Kanaka	6
	Sierra	3
459952:		
Chaix sandy loam, 5 to 30 percent slopes, eroded	Chaix	85
	Holland	6
	Kanaka	6
	Sierra	3

Table 1.—Soil Legend—Continued

Map unit symbol and map unit name	Components in map unit	Percent of map unit
459953:		
Chaix sandy loam, 30 to 50 percent slopes	Chaix	85
	Holland	6
	Kanaka	6
	Sierra	3
459954:		
Chaix sandy loam, 50 to 70 percent	Chaix	85
	Holland	6
	Kanaka	6
	Sierra	3
459959:		
Churn gravelly loam, 3 to 8 percent slopes	Churn	85
	Cobbly alluvial land	5
	Honcut	4
	Perkins	3
	Tahama	3
459963:		
Cobbly alluvial land	Cobbly alluvial land	90
	Cobbly alluvial land, hydric	10
459975:		
Colluvial land	Colluvial land	90
	Unnamed soils	10
459981:		
Corbett loamy coarse sand, 15 to 50 percent slopes	Corbett	85
	Unnamed soils	8
	Chaix	4
	Holland	3
459982:		
Corbett loamy coarse sand, 30 to 70 percent slopes, severely eroded	Corbett	85
	Unnamed soils	8
	Chaix	4
	Holland	3

Table 1.—Soil Legend—Continued

Map unit symbol and map unit name	Components in map unit	Percent of map unit
459983:		
Corbett loamy coarse sand, 50 to 80 percent slopes	Corbett	85
	Unnamed soils	8
	Chaix	7
459984:		
Corbett very rocky loamy coarse sand, 30 to 80 percent slopes	Corbett	65
	Rock outcrop	20
	Unnamed soils	8
	Chaix	7
459985:		
Diamond Springs very stony sandy loam, 8 to 30 percent slopes, eroded	Diamond Springs	85
	Kanaka	10
	Unnamed soils	5
459986:		
Diamond Springs very rocky sandy loam, 30 to 50 percent slopes, eroded	Diamond Springs	70
	Rock outcrop	15
	Kanaka	10
	Goulding	3
	Aiken	2
459995:		
Goulding very stony loam, 10 to 30 percent slopes	Goulding	85
	Auburn	10
	Diamond Springs	5
459996:		
Goulding very rocky loam, 30 to 50 percent slopes, eroded	Goulding	65
	Rock outcrop	20
	Auburn	10
	Diamond Springs	5
459997:		
Goulding very rocky loam, 50 to 70 percent slopes, eroded	Goulding	65
	Rock outcrop	20
	Auburn	10
	Diamond Springs	5

Table 1.—Soil Legend—Continued

Map unit symbol and map unit name	Components in map unit	Percent of map unit
460004:		
Holland sandy loam, 15 to 50 percent slopes	Holland	85
	Chaix	7
	Unnamed soils	5
	Auburn	3
460005:		
Holland sandy loam, 50 to 70 percent slopes	Holland	85
	Auberry	5
	Chaix	5
	Unnamed soils	5
460020:		
Josephine gravelly loam, 50 to 70 percent slopes	Josephine	85
	Marpa	7
	Sheetiron	6
	Sites	2
460028:		
Kanaka rocky sandy loam, 5 to 30 percent slopes	Kanaka	70
	Rock outcrop	15
	Auberry	5
	Chaix	5
	Diamond Springs	5
460029:		
Kanaka rocky sandy loam, 30 to 50 percent slopes	Kanaka	70
	Rock outcrop	15
	Auberry	5
	Chaix	5
	Diamond Springs	5
460030:		
Kanaka rocky sandy loam, 50 to 70 percent slopes, eroded	Kanaka	70
	Rock outcrop	15
	Auberry	5
	Chaix	5
	Diamond Springs	5

Table 1.—Soil Legend—Continued

Map unit symbol and map unit name	Components in map unit	Percent of map unit
460034:		
Kidd very rocky loam, 10 to 60 percent slopes, eroded	Kidd	85
	Behemotosh	5
	Boomer	5
	Neuns	5
460041:		
Landslides	Landslides	85
	Behemotosh	4
	Kilarc	4
	Sites	4
	Josephine	3
460054:		
Maymen very stony loam, 30 to 80 percent slopes, eroded	Maymen	85
	Colluvial land	3
	Josephine	3
	Marpa	3
	Millsholm	3
	Sheetiron	3
460062:		
Millsholm gravelly loam, 50 to 75 percent slopes	Millsholm	85
	Gaviota	8
	Millsap	7
460076:		
Neuns very stony loam, 8 to 50 percent slopes	Neuns	85
	Boomer	10
	Goulding	5
460077:		
Neuns very stony loam, 50 to 80 percent slopes	Neuns	85
	Boomer	10
	Goulding	5
460080:		
Newtown gravelly loam, 30 to 50 percent slopes, eroded	Newtown	85
	Perkins	10
	Red Bluff	5

Table 1.—Soil Legend—Continued

Map unit symbol and map unit name	Components in map unit	Percent of map unit
460081:		
Newtown stony loam, 8 to 50 percent slopes, eroded	Newtown	85
	Perkins	10
	Red Bluff	5
460098:		
Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	Red Bluff	85
	Newtown	5
	Perkins	5
	Redding	4
	Unnamed soils	1
460103:		
Reiff sandy loam, channeled, 0 to 8 percent slopes	Reiff	85
	Anderson	5
	Tujunga	5
	Unnamed soils	5
460112:		
Riverwash	Riverwash	100
460113:		
Rockland	Rockland	100
460140:		
Stonyford very stony loam, 30 to 50 percent slopes	Stonyford	85
	Auburn	5
	Boomer	5
	Goulding	5
460141:		
Stonyford very stony loam, 50 to 75 percent slopes	Stonyford	85
	Auburn	5
	Boomer	5
	Goulding	5
460147:		
Tailings and placer diggings	Tailings and placer diggings	95
	Unnamed soils	5
1395761:		
Water	Water	100

Table 2.—Land Capability Classification

(Land capability classification is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time. Only the soils suitable for cultivation are listed)

Map unit symbol and component name	Land capability	
	N	I
459936:		
Auburn	4e	4e
459937:		
Auburn	6s	---
459939:		
Auburn	7e	---
459940:		
Auburn	7e	---
459941:		
Behemotosh	6s	---
459942:		
Behemotosh	6e	---
459943:		
Behemotosh	7e	---
459945:		
Boomer	4e	4e
459946:		
Boomer	6e	---
459947:		
Boomer	7s	---
459948:		
Boomer	6e	---
459950:		
Chaix	7e	---
459951:		
Chaix	7e	---
459952:		
Chaix	6e	---
459953:		
Chaix	7e	---
459954:		
Chaix	7e	---
459959:		
Churn	3e	2e
459963:		
Cobbly alluvial land	4s	---
459975:		
Colluvial land	7s	---

Table 2.—Land Capability Classification—Continued

Map unit symbol and component name	Land capability	
	N	I
459981:		
Corbett	6e	---
459982:		
Corbett	7e	---
459983:		
Corbett	7e	---
459984:		
Corbett	7e	---
459985:		
Diamond Springs	6s	---
459986:		
Diamond Springs	7s	---
459995:		
Goulding	6s	---
459996:		
Goulding	6e	---
459997:		
Goulding	7e	---
460004:		
Holland	6e	---
460005:		
Holland	7e	---
460020:		
Josephine	7e	---
460028:		
Kanaka	4e	---
460029:		
Kanaka	6e	---
460030:		
Kanaka	7e	---
460034:		
Kidd	7e	---
460054:		
Maymen	7s	---
460062:		
Millsholm	7e	---
460076:		
Neuns	6s	---
460077:		
Neuns	7s	---
460080:		
Newtown	6e	---

Table 2.—Land Capability Classification—Continued

Map unit symbol and component name	Land capability	
	N	I
460081:		
Newtown	6e	---
460098:		
Red Bluff	3e	3e
460103:		
Reiff	4w	4w
460112:		
Riverwash	8	---
460113:		
Rockland	8s	---
460140:		
Stonyford	7s	---
460141:		
Stonyford	7s	---

Table 3.—Prime and Other Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are indicated in the column "Farmland classification")

Map unit symbol	Map unit name	Farmland classification
459959	Churn gravelly loam, 3 to 8 percent slopes	Prime farmland if irrigated
460098	Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	Farmland of statewide importance
460103	Reiff sandy loam, channeled, 0 to 8 percent slopes	Farmland of statewide importance

Table 4.—Hydric Soils

(This report lists only those map unit components that are rated as hydric. Definitions of hydric criteria codes are included at the end of the report)

Map unit symbol and map unit name	Component	Percent of map unit	Landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
459959:							
Churn gravelly loam, 3 to 8 percent slopes	Cobbly alluvial land	5	drainageways	4, 3	No	Yes	Yes
459963:							
Cobbly alluvial land	Cobbly alluvial land	10	drainageways	4, 3	No	Yes	Yes
460098:							
Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	Unnamed soils	1	depressions	3	No	No	Yes
460103:							
Reiff sandy loam, channeled, 0 to 8 percent slopes	Reiff	85	fans	4	No	Yes	No
	Unnamed soils	5	flood plains	4	No	Yes	No
460112:							
Riverwash	Riverwash	100	drainageways	4	No	Yes	No
460147:							
Tailings and placer diggings	Unnamed soils	5	flood plains	3, 4	No	Yes	Yes

Explanation of hydric criteria codes:

1. All Histels (except for Folistels), and Histosols (except for Folists), which are, by definition, saturated.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for periods of long or very long duration during the growing season.
4. Soils that are frequently flooded for periods of long or very long duration during the growing season.

Table 5.—Rangeland Productivity

(Only the soils that support rangeland vegetation suitable for grazing are rated)

Map unit symbol and soil name	Ecological site and symbol	Total dry-weight production		
		Favorable year	Normal year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
459936:				
Auburn	SHALLOW LOAMY (R015XD093CA)	3,000	2,000	1,000
459937:				
Auburn	SHALLOW LOAMY (R015XD093CA)	3,000	2,000	1,000
459939:				
Auburn	SHALLOW LOAMY (R015XD093CA)	3,000	2,000	1,000
459940:				
Auburn	SHALLOW LOAMY (R015XD093CA)	3,000	2,000	1,000
459995:				
Goulding	SHALLOW LOAMY (R018XD076CA)	---	---	---
459996:				
Goulding	SHALLOW LOAMY (R018XD076CA)	---	---	---
459997:				
Goulding	SHALLOW LOAMY (R018XD076CA)	---	---	---
460028:				
Kanaka	GRANITIC (R015XD124CA)	---	---	---
460029:				
Kanaka	GRANITIC (R015XD124CA)	---	---	---
460030:				
Kanaka	GRANITIC (R015XD124CA)	---	---	---
460034:				
Kidd	VERY SHALLOW VERY ROCKY (R015XD136CA)	---	---	---
460054:				
Maymen	VERY SHALLOW LOAMY (R015XD135CA)	---	---	---
460062:				
Millsholm	SHALLOW LOAMY (R015XD093CA)	2,500	2,000	1,000
460080:				
Newtown	UPLAND TERRACE (R017XD088CA)	2,000	1,500	1,000
460081:				
Newtown	UPLAND TERRACE (R017XD088CA)	2,000	1,500	1,000
460098:				
Red Bluff	ACID TERRACE (R017XD089CA)	2,500	2,000	1,000
460140:				
Stonyford	SHALLOW LOAMY (R015XD093CA)	2,500	2,000	1,500
460141:				
Stonyford	SHALLOW LOAMY (R015XD093CA)	2,500	2,000	1,500

Table 6.—Land Management, Part I (Planting)

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459936:							
Auburn	85	Well suited		Poorly suited		Severe	
				Slope	0.75	Low strength	1.00
				Rock fragments	0.50		
459937:							
Auburn	85	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.50	Slope	0.75	Low strength	0.50
				Rock fragments	0.75		
459939:							
Auburn	85	Moderately suited		Unsuited		Moderate	
		Rock fragments	0.50	Slope	1.00	Low strength	0.50
		Slope	0.50	Rock fragments	0.75		
459940:							
Auburn	75	Moderately suited		Unsuited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
459941:							
Behemotosh	85	Moderately suited		Poorly suited		Slight	
		Rock fragments	0.50	Slope	0.75	Strength	0.10
				Rock fragments	0.75		
459942:							
Behemotosh	85	Moderately suited		Unsuited		Slight	
		Rock fragments	0.50	Slope	1.00	Strength	0.10
		Slope	0.50	Rock fragments	0.75		
459943:							
Behemotosh	65	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
459945:							
Boomer	85	Well suited		Poorly suited		Slight	
				Slope	0.75	Strength	0.10
				Rock fragments	0.50		
459946:							
Boomer	85	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
459947:							
Boomer	85	Moderately suited		Unsuited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Rock fragments	0.50	Rock fragments	0.75		

Table 6.—Land Management, Part I (Planting)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459948:							
Boomer	85	Moderately suited		Unsuited		Severe	
		Rock fragments	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Rock fragments	0.75		
459950:							
Chaix	85	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
459951:							
Chaix	85	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
459952:							
Chaix	85	Well suited		Poorly suited		Moderate	
				Slope	0.75	Low strength	0.50
459953:							
Chaix	85	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
459954:							
Chaix	85	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
459959:							
Churn	85	Well suited		Moderately suited		Slight	
				Slope	0.50	Strength	0.10
				Rock fragments	0.50		
459963:							
Cobbly alluvial land	90	Moderately suited		Moderately suited		Slight	
		Sandiness	0.50	Sandiness	0.50	Strength	0.10
				Rock fragments	0.50		
459975:							
Colluvial land	90	Moderately suited		Unsuited		Slight	
		Sandiness	0.50	Slope	1.00	Strength	0.10
		Slope	0.50	Rock fragments	0.75		
		Rock fragments	0.50	Sandiness	0.50		
459981:							
Corbett	85	Well suited		Unsuited		Moderate	
				Slope	1.00	Low strength	0.50
459982:							
Corbett	85	Moderately suited		Unsuited		Moderate	
		Sandiness	0.50	Slope	1.00	Low strength	0.50
		Slope	0.50	Sandiness	0.50		
459983:							
Corbett	85	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
459984:							
Corbett	65	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50

Table 6.—Land Management, Part I (Planting)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459985:							
Diamond Springs	85	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.50	Slope	0.75	Low strength	0.50
				Rock fragments	0.75		
459986:							
Diamond Springs	70	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
				Rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
459995:							
Goulding	85	Moderately suited		Poorly suited		Slight	
		Rock fragments	0.50	Slope	0.75	Strength	0.10
				Rock fragments	0.75		
459996:							
Goulding	65	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
459997:							
Goulding	65	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
460004:							
Holland	85	Well suited		Unsuited		Moderate	
				Slope	1.00	Low strength	0.50
460005:							
Holland	85	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
460020:							
Josephine	85	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
460028:							
Kanaka	70	Well suited		Poorly suited		Moderate	
				Slope	0.75	Low strength	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
460029:							
Kanaka	70	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 6.—Land Management, Part I (Planting)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460030:							
Kanaka	70	Moderately suited		Unsuited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
460034:							
Kidd	85	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
460041:							
Landslides	85	Moderately suited		Unsuited		Slight	
		Sandiness	0.50	Slope	1.00	Strength	0.10
		Rock fragments	0.50	Rock fragments	1.00		
		Slope	0.50	Sandiness	0.50		
460054:							
Maymen	85	Moderately suited		Unsuited		Slight	
		Rock fragments	0.50	Slope	1.00	Strength	0.10
		Slope	0.50	Rock fragments	0.75		
460062:							
Millsholm	85	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
460076:							
Neuns	85	Moderately suited		Unsuited		Slight	
		Rock fragments	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.75		
460077:							
Neuns	85	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
		Rock fragments	0.50	Rock fragments	0.75		
460080:							
Newtown	85	Moderately suited		Unsuited		Slight	
		Slope	0.50	Slope	1.00	Strength	0.10
				Rock fragments	0.50		
460081:							
Newtown	85	Well suited		Unsuited		Slight	
				Slope	1.00	Strength	0.10
				Rock fragments	0.50		
460098:							
Red Bluff	85	Well suited		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
460103:							
Reiff	85	Well suited		Well suited		Moderate	
						Low strength	0.50
460112:							
Riverwash	100	Moderately suited		Poorly suited		Slight	
		Sandiness	0.50	Rock fragments	0.75	Strength	0.10
		Rock fragments	0.50	Sandiness	0.50		

Table 6.—Land Management, Part I (Planting)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460113:							
Rockland	100	Not rated		Not rated		Not rated	
460140:							
Stonyford	85	Moderately suited		Unsuited		Severe	
		Rock fragments	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Rock fragments	0.75		
460141:							
Stonyford	85	Moderately suited		Unsuited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Rock fragments	0.50	Rock fragments	0.75		
460147:							
Tailings and placer diggings	95	Not rated		Not rated		Not rated	
1395761:							
Water	100	Not rated		Not rated		Not rated	

Table 6.—Land Management, Part II (Hazard of Erosion and Suitability for Roads)

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Hazard of erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459936:							
Auburn	85	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95	Poorly suited Slope Low strength	1.00 0.50
459937:							
Auburn	85	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95	Poorly suited Slope Rock fragments	1.00 0.50
459939:							
Auburn	85	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95	Poorly suited Slope Rock fragments	1.00 0.50
459940:							
Auburn	75	Very severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95	Poorly suited Slope Low strength	1.00 0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
459941:							
Behemotosh	85	Moderate Slope/erodibility	0.50	Moderate Slope/erodibility	0.50	Poorly suited Slope Rock fragments	1.00 0.50
459942:							
Behemotosh	85	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95	Poorly suited Slope Rock fragments	1.00 0.50
459943:							
Behemotosh	65	Very severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95	Poorly suited Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
459945:							
Boomer	85	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95	Poorly suited Slope	1.00
459946:							
Boomer	85	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95	Poorly suited Slope	1.00
459947:							
Boomer	85	Very severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95	Poorly suited Slope Rock fragments Low strength	1.00 0.50 0.50

Table 6.—Land Management, Part II (Hazard of Erosion and Suitability for Roads)—Continued

Map unit symbol and soil name	Pct. of map unit	Hazard of erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459948:							
Boomer	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
						Low strength	0.50
459950:							
Chaix	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
459951:							
Chaix	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
459952:							
Chaix	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
459953:							
Chaix	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
459954:							
Chaix	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
459959:							
Churn	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
459963:							
Cobbly alluvial land	90	Slight		Slight		Moderately suited	
						Sandiness	0.50
459975:							
Colluvial land	90	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
459981:							
Corbett	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
459982:							
Corbett	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
459983:							
Corbett	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
459984:							
Corbett	65	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
459985:							
Diamond Springs	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50

Table 6.—Land Management, Part II (Hazard of Erosion and Suitability for Roads)—Continued

Map unit symbol and soil name	Pct. of map unit	Hazard of erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459986:							
Diamond Springs	70	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
459995:							
Goulding	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
459996:							
Goulding	65	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
459997:							
Goulding	65	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
460004:							
Holland	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
460005:							
Holland	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
460020:							
Josephine	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
460028:							
Kanaka	70	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
460029:							
Kanaka	70	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
460030:							
Kanaka	70	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
460034:							
Kidd	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
460041:							
Landslides	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50

Table 6.—Land Management, Part II (Hazard of Erosion and Suitability for Roads)—Continued

Map unit symbol and soil name	Pct. of map unit	Hazard of erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460054:							
Maymen	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
460062:							
Millsholm	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
460076:							
Neuns	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
460077:							
Neuns	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
460080:							
Newtown	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
460081:							
Newtown	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
460098:							
Red Bluff	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
460103:							
Reiff	85	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
460112:							
Riverwash	100	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Sandiness	0.50
460113:							
Rockland	100	Not rated		Not rated		Not rated	
460140:							
Stonyford	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
						Low strength	0.50
460141:							
Stonyford	85	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
						Low strength	0.50
460147:							
Tailings and placer diggings	95	Not rated		Not rated		Not rated	
1395761:							
Water	100	Not rated		Not rated		Not rated	

Table 6.—Land Management, Part III (Site Preparation)

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (deep)		Suitability for mechanical site preparation (surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459936:					
Auburn	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
459937:					
Auburn	85	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
		Slope	0.50	Slope	0.50
459939:					
Auburn	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
459940:					
Auburn	75	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459941:					
Behemotosh	85	Poorly suited		Poorly suited	
		Restrictive layer	0.50	Rock fragments	0.50
		Rock fragments	0.50	Slope	0.50
		Slope	0.50		
459942:					
Behemotosh	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Restrictive layer	0.50	Rock fragments	0.50
		Rock fragments	0.50		
459943:					
Behemotosh	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Restrictive layer	0.50		
Rock outcrop	15	Not rated		Not rated	
459945:					
Boomer	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
459946:					
Boomer	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459947:					
Boomer	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50

Table 6.—Land Management, Part III (Site Preparation)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (deep)		Suitability for mechanical site preparation (surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459948:					
Boomer	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
459950:					
Chaix	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459951:					
Chaix	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459952:					
Chaix	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
459953:					
Chaix	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459954:					
Chaix	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459959:					
Churn	85	Well suited		Well suited	
459963:					
Cobbly alluvial land	90	Well suited		Well suited	
459975:					
Colluvial land	90	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Rock fragments	0.50
459981:					
Corbett	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
459982:					
Corbett	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459983:					
Corbett	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459984:					
Corbett	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
459985:					
Diamond Springs	85	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
		Slope	0.50	Slope	0.50

Table 6.—Land Management, Part III (Site Preparation)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (deep)		Suitability for mechanical site preparation (surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459986:					
Diamond Springs	70	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459995:					
Goulding	85	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
		Slope	0.50	Slope	0.50
459996:					
Goulding	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	20	Not rated		Not rated	
459997:					
Goulding	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	20	Not rated		Not rated	
460004:					
Holland	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
460005:					
Holland	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
460020:					
Josephine	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
460028:					
Kanaka	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Rock outcrop	15	Not rated		Not rated	
460029:					
Kanaka	70	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
460030:					
Kanaka	70	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
460034:					
Kidd	85	Unsuited		Poorly suited	
		Restrictive layer	1.00	Slope	0.50
		Slope	0.50		

Table 6.—Land Management, Part III (Site Preparation)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (deep)		Suitability for mechanical site preparation (surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460041:					
Landslides	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
460054:					
Maymen	85	Unsuited		Unsuited	
		Restrictive layer	1.00	Slope	1.00
		Slope	1.00	Rock fragments	0.50
		Rock fragments	0.50		
460062:					
Millsholm	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Restrictive layer	1.00		
460076:					
Neuns	85	Unsuited		Poorly suited	
		Restrictive layer	1.00	Slope	0.50
		Slope	0.50	Rock fragments	0.50
		Rock fragments	0.50		
460077:					
Neuns	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Restrictive layer	1.00	Rock fragments	0.50
		Rock fragments	0.50		
460080:					
Newtown	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
460081:					
Newtown	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
460098:					
Red Bluff	85	Well suited		Well suited	
460103:					
Reiff	85	Well suited		Well suited	
460112:					
Riverwash	100	Well suited		Poorly suited	
				Rock fragments	0.50
460113:					
Rockland	100	Not rated		Not rated	
460140:					
Stonyford	85	Unsuited		Unsuited	
		Restrictive layer	1.00	Slope	1.00
		Slope	1.00	Rock fragments	0.50
		Rock fragments	0.50		
460141:					
Stonyford	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Restrictive layer	1.00	Rock fragments	0.50
		Rock fragments	0.50		

Table 6.—Land Management, Part III (Site Preparation)—Continued

Map unit symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (deep)		Suitability for mechanical site preparation (surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460147: Tailings and placer diggings	95	Not rated		Not rated	
1395761: Water	100	Not rated		Not rated	

Table 6.—Land Management, Part IV (Site Restoration)

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459936:					
Auburn	85	Moderate Texture/rock fragments	0.50	Low	
459937:					
Auburn	85	Moderate Texture/rock fragments	0.50	Low	
459939:					
Auburn	85	Low		Low	
459940:					
Auburn	75	Low		Low	
Rock outcrop	15	Not rated		Not rated	
459941:					
Behemotosh	85	Moderate Texture/rock fragments	0.50	Low	
459942:					
Behemotosh	85	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	
459943:					
Behemotosh	65	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	
Rock outcrop	15	Not rated		Not rated	
459945:					
Boomer	85	Low Texture/surface depth/rock fragments	0.10	Low	
459946:					
Boomer	85	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	
459947:					
Boomer	85	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	

Table 6.—Land Management, Part IV (Site Restoration)—Continued

Map unit symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459948:					
Boomer	85	Low		Low	
459950:					
Chaix	85	High		Low	
		Texture/slope/ rock fragments	1.00		
459951:					
Chaix	85	High		Low	
		Texture/slope/ rock fragments	1.00		
459952:					
Chaix	85	Low		Low	
		Texture/rock fragments	0.10		
459953:					
Chaix	85	Low		Low	
		Texture/rock fragments	0.10		
459954:					
Chaix	85	Low		Low	
		Texture/rock fragments	0.10		
459959:					
Churn	85	Moderate		Low	
		Texture/rock fragments	0.50		
459963:					
Cobbly alluvial land	90	High		Not rated	
		Texture/rock fragments	1.00		
459975:					
Colluvial land	90	High		Not rated	
		Texture/slope/ rock fragments	1.00		
459981:					
Corbett	85	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
459982:					
Corbett	85	High		Low	
		Texture/slope/ surface depth	1.00		
459983:					
Corbett	85	Moderate		Low	
		Texture/slope/ rock fragments	0.50		

Table 6.—Land Management, Part IV (Site Restoration)—Continued

Map unit symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459984:					
Corbett	65	High Texture/slope/ rock fragments	1.00	Low	
459985:					
Diamond Springs	85	Moderate Texture/rock fragments	0.50	Low	
459986:					
Diamond Springs	70	Moderate Texture/rock fragments	0.50	Low	
Rock outcrop	15	Not rated		Not rated	
459995:					
Goulding	85	High Texture/rock fragments	1.00	Low	
459996:					
Goulding	65	High Texture/slope/ rock fragments	1.00	Low	
Rock outcrop	20	Not rated		Not rated	
459997:					
Goulding	65	High Texture/slope/ rock fragments	1.00	Low	
Rock outcrop	20	Not rated		Not rated	
460004:					
Holland	85	Low		Low	
460005:					
Holland	85	Low Texture/slope/ rock fragments	0.10	Low	
460020:					
Josephine	85	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	
460028:					
Kanaka	70	Moderate Texture/rock fragments	0.50	Low	
Rock outcrop	15	Not rated		Not rated	

Table 6.—Land Management, Part IV (Site Restoration)—Continued

Map unit symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460029:					
Kanaka	70	Moderate Texture/rock fragments	0.50	Low	
Rock outcrop	15	Not rated		Not rated	
460030:					
Kanaka	70	Moderate Texture/rock fragments	0.50	Low	
Rock outcrop	15	Not rated		Not rated	
460034:					
Kidd	85	Low		Low	
460041:					
Landslides	85	Low		Not rated	
460054:					
Maymen	85	High Texture/slope/ surface depth/ rock fragments	1.00	Low	
460062:					
Millsholm	85	Low Texture/rock fragments	0.10	Low	
460076:					
Neuns	85	Moderate Texture/slope/ rock fragments	0.50	Low	
460077:					
Neuns	85	Moderate Texture/slope/ rock fragments	0.50	Low	
460080:					
Newtown	85	Moderate Texture/slope/ rock fragments	0.50	Low	
460081:					
Newtown	85	Moderate Texture/rock fragments	0.50	Low	
460098:					
Red Bluff	85	Moderate Texture/rock fragments	0.50	Low	
460103:					
Reiff	85	Moderate Texture/rock fragments	0.50	High Wetness	1.00

Table 6.—Land Management, Part IV (Site Restoration)—Continued

Map unit symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460112:					
Riverwash	100	High Texture/rock fragments	1.00	Not rated	
460113:					
Rockland	100	Not rated		Not rated	
460140:					
Stonyford	85	Moderate Texture/rock fragments	0.50	Low	
460141:					
Stonyford	85	Moderate Texture/rock fragments	0.50	Low	
460147:					
Tailings and placer diggings	95	Not rated		Not rated	
1395761:					
Water	100	Not rated		Not rated	

Table 7.—Recreation, Part I (Camp and Picnic Areas)

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Camp areas		Picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459936:					
Auburn	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
459937:					
Auburn	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
459939:					
Auburn	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
459940:					
Auburn	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459941:					
Behemotosh	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
		Gravel	0.11	Gravel	0.11
459942:					
Behemotosh	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
		Gravel	0.11	Gravel	0.11
459943:					
Behemotosh	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	0.11	Gravel	0.11
Rock outcrop	15	Not rated		Not rated	
459945:					
Boomer	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	0.41	Gravel	0.41
459946:					
Boomer	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	0.41	Gravel	0.41

Table 7.—Recreation, Part I (Camp and Picnic Areas)—Continued

Map unit symbol and soil name	Pct. of map unit	Camp areas		Picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459947:					
Boomer	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
459948:					
Boomer	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
459950:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459951:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459952:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459953:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459954:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459959:					
Churn	85	Somewhat limited		Somewhat limited	
		Gravel	0.32	Gravel	0.32
459963:					
Cobbly alluvial land	90	Not rated		Not rated	
459975:					
Colluvial land	90	Not rated		Not rated	
459981:					
Corbett	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44
459982:					
Corbett	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44
459983:					
Corbett	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44
459984:					
Corbett	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44

Table 7.—Recreation, Part I (Camp and Picnic Areas)—Continued

Map unit symbol and soil name	Pct. of map unit	Camp areas		Picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459985:					
Diamond Springs	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
459986:					
Diamond Springs	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459995:					
Goulding	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Dusty	0.50	Dusty	0.50
		Gravel	0.05	Gravel	0.05
459996:					
Goulding	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Dusty	0.50	Dusty	0.50
		Gravel	0.05	Gravel	0.05
Rock outcrop	20	Not rated		Not rated	
459997:					
Goulding	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Dusty	0.50	Dusty	0.50
		Gravel	0.05	Gravel	0.05
Rock outcrop	20	Not rated		Not rated	
460004:					
Holland	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
460005:					
Holland	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
460020:					
Josephine	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	0.41	Gravel	0.41
460028:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	

Table 7.—Recreation, Part I (Camp and Picnic Areas)—Continued

Map unit symbol and soil name	Pct. of map unit	Camp areas		Picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460029:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
460030:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
460034:					
Kidd	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.41	Gravel	0.41
460041:					
Landslides	85	Not rated		Not rated	
460054:					
Maymen	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Dusty	0.50	Dusty	0.50
460062:					
Millsholm	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.50	Gravel	0.50
		Dusty	0.50	Dusty	0.50
460076:					
Neuns	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
		Gravel	0.05	Gravel	0.05
460077:					
Neuns	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
		Gravel	0.05	Gravel	0.05
460080:					
Newtown	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	0.41	Gravel	0.41
		Slow water movement	0.41	Slow water movement	0.41

Table 7.—Recreation, Part I (Camp and Picnic Areas)—Continued

Map unit symbol and soil name	Pct. of map unit	Camp areas		Picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460081:					
Newtown	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76
		Slow water movement	0.41	Slow water movement	0.41
		Gravel	0.13	Gravel	0.13
460098:					
Red Bluff	85	Somewhat limited		Somewhat limited	
		Depth to cemented pan	0.46	Depth to cemented pan	0.46
		Slow water movement	0.45	Slow water movement	0.45
		Gravel	0.41	Gravel	0.41
460103:					
Reiff	85	Very limited		Not limited	
		Flooding	1.00		
460112:					
Riverwash	100	Not rated		Not rated	
460113:					
Rockland	100	Not rated		Not rated	
460140:					
Stonyford	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
460141:					
Stonyford	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
460147:					
Tailings and placer diggings	95	Not rated		Not rated	
1395761:					
Water	100	Not rated		Not rated	

Table 7.—Recreation, Part II (Trail Management)

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails		Mountain bike and off-road vehicle trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459936:					
Auburn	85	Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50
		Slope	0.32		
459937:					
Auburn	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Dusty	0.50	Dusty	0.50
		Slope	0.32		
459939:					
Auburn	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
459940:					
Auburn	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459941:					
Behemotosh	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	0.32		
459942:					
Behemotosh	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
459943:					
Behemotosh	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459945:					
Boomer	85	Somewhat limited		Not limited	
		Slope	0.92		
459946:					
Boomer	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00

Table 7.—Recreation, Part II (Trail Management)—Continued

Map unit symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails		Mountain bike and off-road vehicle trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459947:					
Boomer	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
459948:					
Boomer	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
459950:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459951:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459952:					
Chaix	85	Somewhat limited		Not limited	
		Slope	0.18		
459953:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459954:					
Chaix	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
459959:					
Churn	85	Not limited		Not limited	
459963:					
Cobbly alluvial land	90	Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00
459975:					
Colluvial land	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Gravel	1.00	Gravel	1.00
459981:					
Corbett	85	Very limited		Somewhat limited	
		Slope	1.00	Slope	0.56
		Too sandy	0.44	Too sandy	0.44
459982:					
Corbett	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44
459983:					
Corbett	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44

Table 7.—Recreation, Part II (Trail Management)—Continued

Map unit symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails		Mountain bike and off-road vehicle trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459984:					
Corbett	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too sandy	0.44	Too sandy	0.44
459985:					
Diamond Springs	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	0.32		
459986:					
Diamond Springs	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
459995:					
Goulding	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	0.50	Dusty	0.50
		Dusty	0.50		
459996:					
Goulding	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
Rock outcrop	20	Not rated		Not rated	
459997:					
Goulding	65	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
Rock outcrop	20	Not rated		Not rated	
460004:					
Holland	85	Very limited		Somewhat limited	
		Slope	1.00	Slope	0.56
460005:					
Holland	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
460020:					
Josephine	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
460028:					
Kanaka	70	Somewhat limited		Not limited	
		Slope	0.18		
Rock outcrop	15	Not rated		Not rated	
460029:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	

Table 7.—Recreation, Part II (Trail Management)—Continued

Map unit symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails		Mountain bike and off-road vehicle trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460030:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
460034:					
Kidd	85	Very limited		Somewhat limited	
		Slope	1.00	Slope	0.78
460041:					
Landslides	85	Very limited		Very limited	
		Slope	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00
460054:					
Maymen	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
460062:					
Millsholm	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
460076:					
Neuns	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	0.56
		Dusty	0.50	Dusty	0.50
460077:					
Neuns	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50
460080:					
Newtown	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
460081:					
Newtown	85	Very limited		Somewhat limited	
		Slope	1.00	Large stones content	0.76
		Large stones content	0.76	Slope	0.14
460098:					
Red Bluff	85	Not limited		Not limited	
460103:					
Reiff	85	Not limited		Not limited	

Table 7.—Recreation, Part II (Trail Management)—Continued

Map unit symbol and soil name	Pct. of map unit	Foot traffic and equestrian trails		Mountain bike and off-road vehicle trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460112:					
Riverwash	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too sandy	1.00	Too sandy	1.00
		Gravel	1.00	Gravel	1.00
		Flooding	0.40	Flooding	0.40
460113:					
Rockland	100	Not rated		Not rated	
460140:					
Stonyford	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
460141:					
Stonyford	85	Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00
		Slope	1.00	Slope	1.00
460147:					
Tailings and placer diggings	95	Not rated		Not rated	
1395761:					
Water	100	Not rated		Not rated	

Table 8.—Dwellings and Small Commercial Buildings

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459936:							
Auburn	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Depth to hard bedrock	0.90
459937:							
Auburn	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
459939:							
Auburn	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.71	Depth to hard bedrock	1.00	Depth to hard bedrock	0.71
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
459940:							
Auburn	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
459941:							
Behemotosh	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
459942:							
Behemotosh	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
459943:							
Behemotosh	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 8.—Dwellings and Small Commercial Buildings—Continued

Map unit symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459945:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
459946:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
459947:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
459948:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				Depth to soft bedrock	0.46		
459950:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
459951:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
459952:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
459953:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
459954:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
459959:							
Churn	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
						Shrink-swell	0.50
459963:							
Cobbly alluvial land	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00

Table 8.—Dwellings and Small Commercial Buildings—Continued

Map unit symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459975:							
Colluvial land	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
459981:							
Corbett	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.90		
459982:							
Corbett	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	1.00		
459983:							
Corbett	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.90		
459984:							
Corbett	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.90		
459985:							
Diamond Springs	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
459986:							
Diamond Springs	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
459995:							
Goulding	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
459996:							
Goulding	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
459997:							
Goulding	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 8.—Dwellings and Small Commercial Buildings—Continued

Map unit symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460004:							
Holland	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
460005:							
Holland	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
460020:							
Josephine	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
460028:							
Kanaka	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
Rock outcrop	15	Not rated		Not rated		Not rated	
460029:							
Kanaka	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
Rock outcrop	15	Not rated		Not rated		Not rated	
460030:							
Kanaka	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
Rock outcrop	15	Not rated		Not rated		Not rated	
460034:							
Kidd	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
460041:							
Landslides	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
460054:							
Maymen	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
460062:							
Millsholm	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00

Table 8.—Dwellings and Small Commercial Buildings—Continued

Map unit symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460076:							
Neuns	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.95	Depth to hard bedrock	1.00	Depth to hard bedrock	0.95
460077:							
Neuns	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.95	Depth to hard bedrock	1.00	Depth to hard bedrock	0.95
460080:							
Newtown	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
460081:							
Newtown	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	0.50	Shrink-swell	1.00
460098:							
Red Bluff	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
				Depth to thin cemented pan	0.46	Shrink-swell	0.50
460103:							
Reiff	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
460112:							
Riverwash	100	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
460113:							
Rockland	100	Not rated		Not rated		Not rated	
460140:							
Stonyford	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
460141:							
Stonyford	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
460147:							
Tailings and placer diggings	95	Not rated		Not rated		Not rated	
1395761:							
Water	100	Not rated		Not rated		Not rated	

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459936:							
Auburn	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Unstable excavation walls	1.00	Depth to bedrock	0.90
				Slope	1.00	Droughty	0.24
459937:							
Auburn	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Unstable excavation walls	1.00	Slope	1.00
				Slope	1.00	Droughty	0.84
						Large stones	0.74
459939:							
Auburn	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.71	Slope	1.00	Large stones	0.74
		Shrink-swell	0.50	Unstable excavation walls	1.00	Depth to bedrock	0.71
						Droughty	0.12
459940:							
Auburn	75	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Shrink-swell	0.50	Unstable excavation walls	1.00	Droughty	0.60
Rock outcrop	15	Not rated		Not rated		Not rated	
459941:							
Behemotosh	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Depth to bedrock	0.90
		Shrink-swell	0.50	Unstable excavation walls	0.10	Droughty	0.77
		Frost action	0.50			Large stones	0.54
						Gravel	0.11
459942:							
Behemotosh	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Depth to bedrock	0.90
		Shrink-swell	0.50	Unstable excavation walls	0.10	Droughty	0.77
		Frost action	0.50			Large stones	0.54
						Gravel	0.11

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping—Continued

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459943:							
Behemotosh	65	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Depth to bedrock	0.90
		Shrink-swell	0.50	Unstable excavation walls	0.10	Droughty	0.77
		Frost action	0.50			Large stones	0.54
						Gravel	0.11
Rock outcrop	15	Not rated		Not rated		Not rated	
459945:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.78	Unstable excavation walls	1.00	Gravel	0.41
		Shrink-swell	0.50				
		Frost action	0.50				
459946:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.78	Unstable excavation walls	1.00	Gravel	0.41
		Shrink-swell	0.50				
		Frost action	0.50				
459947:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.78	Unstable excavation walls	0.10	Large stones	0.95
		Shrink-swell	0.50				
		Frost action	0.50				
459948:							
Boomer	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.46	Large stones	0.95
		Frost action	0.50	Unstable excavation walls	0.10	Depth to bedrock	0.46
459950:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Unstable excavation walls	0.10	Droughty	0.36
459951:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Unstable excavation walls	0.10	Droughty	0.36

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping—Continued

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459952:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
						Droughty	0.36
				Unstable excavation walls	0.10		
459953:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
						Droughty	0.36
				Unstable excavation walls	0.10		
459954:							
Chaix	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
						Droughty	0.36
				Unstable excavation walls	0.10		
459959:							
Churn	85	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Unstable excavation walls	1.00	Gravel	0.32
459963:							
Cobbly alluvial land	90	Somewhat limited		Very limited		Not rated	
		Flooding	0.40	Unstable excavation walls	1.00		
459975:							
Colluvial land	90	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
				Unstable excavation walls	1.00		
459981:							
Corbett	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Unstable excavation walls	1.00	Droughty	1.00
				Depth to soft bedrock	0.90	Depth to bedrock	0.90
						Too sandy	0.50
459982:							
Corbett	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Slope	1.00
						Droughty	1.00
				Slope	1.00	Depth to bedrock	1.00
				Unstable excavation walls	1.00	Too sandy	0.50

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping—Continued

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459983:							
Corbett	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Unstable excavation walls	1.00	Droughty	1.00
						Depth to bedrock	0.90
				Depth to soft bedrock	0.90	Too sandy	0.50
459984:							
Corbett	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Unstable excavation walls	1.00	Droughty	1.00
						Depth to bedrock	0.90
				Depth to soft bedrock	0.90	Too sandy	0.50
459985:							
Diamond Springs	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Unstable excavation walls	0.10	Large stones	0.54
459986:							
Diamond Springs	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Unstable excavation walls	0.10	Large stones	0.54
Rock outcrop	15	Not rated		Not rated		Not rated	
459995:							
Goulding	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Droughty	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.84
						Gravel	0.05
459996:							
Goulding	65	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
		Slope	1.00	Slope	1.00	Droughty	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.84
						Gravel	0.05
Rock outcrop	20	Not rated		Not rated		Not rated	
459997:							
Goulding	65	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Slope	1.00
		Slope	1.00	Slope	1.00	Droughty	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.84
						Gravel	0.05
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping—Continued

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460004:							
Holland	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Unstable excavation walls	0.10		
		Frost action	0.50				
460005:							
Holland	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Unstable excavation walls	0.10		
		Frost action	0.50				
460020:							
Josephine	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Unstable excavation walls	1.00	Gravel	0.41
		Frost action	0.50				
460028:							
Kanaka	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
				Unstable excavation walls	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
460029:							
Kanaka	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
				Unstable excavation walls	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
460030:							
Kanaka	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
				Unstable excavation walls	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
460034:							
Kidd	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Droughty	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Unstable excavation walls	0.10	Gravel	0.41
460041:							
Landslides	85	Very limited		Very limited		Not rated	
		Large stones	1.00	Large stones	1.00		
		Slope	1.00	Slope	1.00		

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping—Continued

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460054:							
Maymen	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Unstable excavation walls	0.50	Droughty	1.00
						Large stones	1.00
460062:							
Millsholm	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Unstable excavation walls	0.10	Droughty	0.99
						Gravel	0.50
460076:							
Neuns	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.95	Slope	1.00	Droughty	1.00
				Unstable excavation walls	1.00	Depth to bedrock	0.95
						Large stones	0.84
						Gravel	0.05
460077:							
Neuns	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.95	Slope	1.00	Droughty	1.00
				Unstable excavation walls	1.00	Depth to bedrock	0.95
						Large stones	0.84
						Gravel	0.05
460080:							
Newtown	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Unstable excavation walls	1.00	Gravel	0.41
		Low strength	1.00	Too clayey	0.12		
460081:							
Newtown	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Unstable excavation walls	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Large stones	0.38
		Slope	1.00	Too clayey	0.12	Gravel	0.13
460098:							
Red Bluff	85	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Unstable excavation walls	1.00	Depth to cemented pan	0.46
				Depth to thin cemented pan	0.46	Gravel	0.41
				Too clayey	0.28	Droughty	0.01
460103:							
Reiff	85	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Unstable excavation walls	1.00		

Table 9.—Roads and Streets, Shallow Excavations, and Landscaping—Continued

Map unit symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460112:							
Riverwash	100	Very limited		Very limited		Not rated	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Flooding	1.00	Unstable excavation walls	1.00		
				Flooding	0.80		
460113:							
Rockland	100	Not rated		Not rated		Not rated	
460140:							
Stonyford	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Large stones	0.95
		Shrink-swell	0.50	Unstable excavation walls	1.00	Depth to bedrock	0.90
						Droughty	0.31
460141:							
Stonyford	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Large stones	0.95
		Shrink-swell	0.50	Unstable excavation walls	1.00	Depth to bedrock	0.90
						Droughty	0.31
460147:							
Tailings and placer diggings	95	Not rated		Not rated		Not rated	
1395761:							
Water	100	Not rated		Not rated		Not rated	

Table 10.—Sewage Disposal

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459936:					
Auburn	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
459937:					
Auburn	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
				Slope	1.00
				Seepage	0.50
459939:					
Auburn	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
459940:					
Auburn	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00		
				Slope	1.00
				Seepage	0.50
Rock outcrop	15	Not rated		Not rated	
459941:					
Behemotosh	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00		
		Slope	1.00	Slope	1.00
				Seepage	1.00
				Large stones	0.02
459942:					
Behemotosh	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00		
		Slope	1.00	Slope	1.00
				Seepage	1.00
459943:					
Behemotosh	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00		
		Slope	1.00	Slope	1.00
				Seepage	1.00
Rock outcrop	15	Not rated		Not rated	

Table 10.—Sewage Disposal—Continued

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459945:					
Boomer	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.84
		Depth to bedrock	0.94		
459946:					
Boomer	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.84
		Depth to bedrock	0.94		
459947:					
Boomer	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Depth to soft bedrock	0.84
		Depth to bedrock	0.94		
459948:					
Boomer	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Depth to bedrock	1.00		
459950:					
Chaix	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
459951:					
Chaix	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
459952:					
Chaix	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
459953:					
Chaix	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 10.—Sewage Disposal—Continued

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459954:					
Chaix	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
459959:					
Churn	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.92
				Seepage	0.50
459963:					
Cobbly alluvial land	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Flooding	0.40
		Filtering capacity	1.00	Slope	0.08
		Flooding	0.40		
459975:					
Colluvial land	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
459981:					
Corbett	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
459982:					
Corbett	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
459983:					
Corbett	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
459984:					
Corbett	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		

Table 10.—Sewage Disposal—Continued

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459985:					
Diamond Springs	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	0.50
		Depth to bedrock	0.77	Depth to soft bedrock	0.42
459986:					
Diamond Springs	70	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	0.50
		Depth to bedrock	0.77	Depth to soft bedrock	0.42
Rock outcrop	15	Not rated		Not rated	
459995:					
Goulding	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
459996:					
Goulding	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Rock outcrop	20	Not rated		Not rated	
459997:					
Goulding	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Rock outcrop	20	Not rated		Not rated	
460004:					
Holland	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
460005:					
Holland	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
460020:					
Josephine	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to bedrock	0.24		

Table 10.—Sewage Disposal—Continued

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460028:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	0.85	Depth to hard bedrock	0.61
Rock outcrop	15	Not rated		Not rated	
460029:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.85	Depth to hard bedrock	0.61
Rock outcrop	15	Not rated		Not rated	
460030:					
Kanaka	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to bedrock	0.85	Depth to hard bedrock	0.61
Rock outcrop	15	Not rated		Not rated	
460034:					
Kidd	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
460041:					
Landslides	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
460054:					
Maymen	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	0.50
460062:					
Millsholm	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	0.50

Table 10.—Sewage Disposal—Continued

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460076:					
Neuns	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	0.50
460077:					
Neuns	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	0.50
460080:					
Newtown	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
460081:					
Newtown	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
460098:					
Red Bluff	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slow water movement	1.00	Slope	0.92
460103:					
Reiff	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Flooding	0.40	Flooding	0.40
				Slope	0.32
460112:					
Riverwash	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Slope	0.08
460113:					
Rockland	100	Not rated		Not rated	
460140:					
Stonyford	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00

Table 10.—Sewage Disposal—Continued

Map unit symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460141:					
Stonyford	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
460147:					
Tailings and placer diggings	95	Not rated		Not rated	
1395761:					
Water	100	Not rated		Not rated	

Table 11.—Source of Gravel and Sand

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Gravel source		Sand source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459936:					
Auburn	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459937:					
Auburn	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459939:					
Auburn	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459940:					
Auburn	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	15	Not rated		Not rated	
459941:					
Behemotosh	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459942:					
Behemotosh	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459943:					
Behemotosh	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	15	Not rated		Not rated	
459945:					
Boomer	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459946:					
Boomer	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 11.—Source of Gravel and Sand—Continued

Map unit symbol and soil name	Pct. of map unit	Gravel source		Sand source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459947:					
Boomer	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459948:					
Boomer	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459950:					
Chaix	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.06
		Thickest layer	0.00	Thickest layer	0.06
459951:					
Chaix	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.06
		Thickest layer	0.00	Thickest layer	0.06
459952:					
Chaix	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
459953:					
Chaix	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
459954:					
Chaix	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
459959:					
Churn	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459963:					
Cobbly alluvial land	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.49
459975:					
Colluvial land	90	Fair		Fair	
		Bottom layer	0.44	Bottom layer	0.03
		Thickest layer	0.63	Thickest layer	0.03
459981:					
Corbett	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.10
459982:					
Corbett	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.10

Table 11.—Source of Gravel and Sand—Continued

Map unit symbol and soil name	Pct. of map unit	Gravel source		Sand source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
459983:					
Corbett	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.10
459984:					
Corbett	65	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.10
459985:					
Diamond Springs	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
459986:					
Diamond Springs	70	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.03
Rock outcrop	15	Not rated		Not rated	
459995:					
Goulding	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
459996:					
Goulding	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
459997:					
Goulding	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
460004:					
Holland	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
460005:					
Holland	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
460020:					
Josephine	85	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00

Table 11.—Source of Gravel and Sand—Continued

Map unit symbol and soil name	Pct. of map unit	Gravel source		Sand source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460028:					
Kanaka	70	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.04
Rock outcrop	15	Not rated		Not rated	
460029:					
Kanaka	70	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.04
Rock outcrop	15	Not rated		Not rated	
460030:					
Kanaka	70	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.04
Rock outcrop	15	Not rated		Not rated	
460034:					
Kidd	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
460041:					
Landslides	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460054:					
Maymen	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460062:					
Millsholm	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460076:					
Neuns	85	Fair		Poor	
		Thickest layer	0.06	Bottom layer	0.00
		Bottom layer	0.06	Thickest layer	0.00
460077:					
Neuns	85	Fair		Poor	
		Thickest layer	0.06	Bottom layer	0.00
		Bottom layer	0.06	Thickest layer	0.00
460080:					
Newtown	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460081:					
Newtown	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 11.—Source of Gravel and Sand—Continued

Map unit symbol and soil name	Pct. of map unit	Gravel source		Sand source	
		Rating class and limiting features	Value	Rating class and limiting features	Value
460098:					
Red Bluff	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460103:					
Reiff	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.08
460112:					
Riverwash	100	Fair		Fair	
		Bottom layer	0.25	Bottom layer	0.63
		Thickest layer	0.62	Thickest layer	0.63
460113:					
Rockland	100	Not rated		Not rated	
460140:					
Stonyford	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460141:					
Stonyford	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
460147:					
Tailings and placer diggings	95	Not rated		Not rated	
1395761:					
Water	100	Not rated		Not rated	

Table 12.—Source of Reclamation Material, Roadfill, and Topsoil

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Source of reclamation material		Roadfill source		Topsoil source	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459936:							
Auburn	85	Fair		Poor		Poor	
		Droughty	0.02	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Slope	0.68	Slope	0.00
		Low content of organic matter	0.12			Depth to bedrock	0.10
459937:							
Auburn	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.68	Rock fragments	0.00
		Low content of organic matter	0.12			Slope	0.00
459939:							
Auburn	85	Fair		Poor		Poor	
		Droughty	0.06	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.29	Shrink-swell	0.87	Depth to bedrock	0.29
459940:							
Auburn	75	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12	Shrink-swell	0.87	Rock fragments	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
459941:							
Behemotosh	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Slope	0.68	Slope	0.00
		Too acid	0.54	Cobble content	0.91	Depth to bedrock	0.10
459942:							
Behemotosh	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.68			Depth to bedrock	0.10
459943:							
Behemotosh	65	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.68			Depth to bedrock	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 12.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map unit symbol and soil name	Pct. of map unit	Source of reclamation material		Roadfill source		Topsoil source	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459945:							
Boomer	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Slope	0.08	Slope	0.00
		Too acid	0.84	Depth to bedrock	0.16	Rock fragments	0.00
				Low strength	0.22		
459946:							
Boomer	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.84	Depth to bedrock	0.16	Rock fragments	0.00
				Low strength	0.22		
459947:							
Boomer	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54	Depth to bedrock	0.16	Rock fragments	0.00
		Stone content	0.78	Low strength	0.22	Hard to reclaim (rock fragments)	0.96
459948:							
Boomer	85	Fair		Poor		Poor	
		Droughty	0.34	Slope	0.00	Slope	0.00
		Depth to bedrock	0.54	Depth to bedrock	0.00	Rock fragments	0.00
		Stone content	0.80	Stones	0.80	Depth to bedrock	0.54
459950:							
Chaix	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.00	Depth to bedrock	0.21
		Low content of organic matter	0.68			Rock fragments	0.88
459951:							
Chaix	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.00	Depth to bedrock	0.21
		Low content of organic matter	0.68			Rock fragments	0.88
459952:							
Chaix	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.82	Depth to bedrock	0.21
		Low content of organic matter	0.68			Rock fragments	0.88
459953:							
Chaix	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.00	Depth to bedrock	0.21
		Low content of organic matter	0.68			Rock fragments	0.88
459954:							
Chaix	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.21	Slope	0.00	Depth to bedrock	0.21
		Low content of organic matter	0.68			Rock fragments	0.88

Table 12.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map unit symbol and soil name	Pct. of map unit	Source of reclamation material: Rating class and limiting features	Value	Roadfill source: Rating class and limiting features	Value	Topsoil source: Rating class and limiting features	Value
459959:							
Churn	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Shrink-swell	0.90	Rock fragments	0.00
		Too acid	0.74			Hard to reclaim (rock fragments)	0.68
459963:							
Cobbly alluvial land	90	Not rated		Fair		Not rated	
				Cobble content	0.96		
459975:							
Colluvial land	90	Not rated		Poor		Not rated	
				Slope	0.00		
459981:							
Corbett	85	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.10
		Too sandy	0.28			Too sandy	0.28
459982:							
Corbett	85	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Too sandy	0.28
459983:							
Corbett	85	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.10
		Too sandy	0.28			Too sandy	0.28
459984:							
Corbett	65	Poor		Poor		Poor	
		Wind erosion	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.10
		Too sandy	0.28			Too sandy	0.28
459985:							
Diamond Springs	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.58	Slope	0.00
		Too acid	0.50	Slope	0.68	Rock fragments	0.88
						Too acid	0.88
459986:							
Diamond Springs	70	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.58	Rock fragments	0.88
						Too acid	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	
459995:							
Goulding	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.50	Rock fragments	0.00
		Low content of organic matter	0.12			Slope	0.00

Table 12.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map unit symbol and soil name	Pct. of map unit	Source of reclamation material		Roadfill source		Topsoil source	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459996:							
Goulding	65	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12			Rock fragments	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	
459997:							
Goulding	65	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12			Rock fragments	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	
460004:							
Holland	85	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Low content of organic matter	0.96			Too acid	0.98
460005:							
Holland	85	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Low content of organic matter	0.96			Too acid	0.98
460020:							
Josephine	85	Fair		Poor		Poor	
		Too acid	0.74	Slope	0.00	Hard to reclaim (rock fragments)	0.00
		Stone content	0.88	Shrink-swell	0.98		
		Low content of organic matter	0.96			Slope	0.00
						Rock fragments	0.00
460028:							
Kanaka	70	Fair		Fair		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.39	Slope	0.00
		Too acid	0.50	Slope	0.82	Too acid	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	
460029:							
Kanaka	70	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.39	Too acid	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	
460030:							
Kanaka	70	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.39	Too acid	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 12.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map unit symbol and soil name	Pct. of map unit	Source of reclamation material		Roadfill source		Topsoil source	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460034:							
Kidd	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.54			Slope	0.00
460041:							
Landslides	85	Not rated		Not rated		Not rated	
460054:							
Maymen	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.68			Rock fragments	0.00
460062:							
Millsholm	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Slope	0.00
		Too acid	0.97			Rock fragments	0.00
460076:							
Neuns	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.05	Slope	0.00	Slope	0.00
		Too acid	0.74	Stones	0.99	Depth to bedrock	0.05
460077:							
Neuns	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.05	Slope	0.00	Slope	0.00
		Too acid	0.74	Stones	0.99	Depth to bedrock	0.05
460080:							
Newtown	85	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
		Too acid	0.74	Shrink-swell	0.77		
460081:							
Newtown	85	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.74	Shrink-swell	0.77		
460098:							
Red Bluff	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to cemented pan	0.00	Rock fragments	0.00
		Droughty	0.18	Shrink-swell	0.87	Depth to cemented pan	0.54
		Depth to cemented pan	0.54			Too clayey	0.57
460103:							
Reiff	85	Fair		Good		Fair	
		Low content of organic matter	0.12			Rock fragments	0.97
		Too acid	0.95				

Table 12.—Source of Reclamation Material, Roadfill, and Topsoil—Continued

Map unit symbol and soil name	Pct. of map unit	Source of reclamation material		Roadfill source		Topsoil source	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460112:							
Riverwash	100	Not rated		Poor		Not rated	
				Wetness	0.00		
460113:							
Rockland	100	Not rated		Not rated		Not rated	
460140:							
Stonyford	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.68	Shrink-swell	0.87	Depth to bedrock	0.10
460141:							
Stonyford	85	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.68	Shrink-swell	0.87	Depth to bedrock	0.10
460147:							
Tailings and placer diggings	95	Not rated		Not rated		Not rated	
1395761:							
Water	100	Not rated		Not rated		Not rated	

Table 13.—Ponds and Embankments

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map unit symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459936:							
Auburn	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98				
		Seepage	0.70				
459937:							
Auburn	85	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	0.70				
459939:							
Auburn	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.93	Depth to water	1.00
		Depth to bedrock	0.93				
		Seepage	0.70				
459940:							
Auburn	75	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	0.50		
		Seepage	0.70				
Rock outcrop	15	Not rated		Not rated		Not rated	
459941:							
Behemotosh	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Seepage	1.00				
		Depth to bedrock	0.98				
459942:							
Behemotosh	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Seepage	1.00				
		Depth to bedrock	0.98				
459943:							
Behemotosh	65	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Seepage	1.00				
		Depth to bedrock	0.98				
Rock outcrop	15	Not rated		Not rated		Not rated	
459945:							
Boomer	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.63	Depth to water	1.00
		Seepage	0.03	Thin layer	0.26		
459946:							
Boomer	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.63	Depth to water	1.00
		Seepage	0.03	Thin layer	0.26		

Table 13.—Ponds and Embankments—Continued

Map unit symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459947:							
Boomer	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.63	Depth to water	1.00
		Seepage	0.03	Thin layer	0.26		
459948:							
Boomer	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.86	Depth to water	1.00
		Depth to bedrock	0.11	Piping	0.52		
		Seepage	0.03				
459950:							
Chaix	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
459951:							
Chaix	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
459952:							
Chaix	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
459953:							
Chaix	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
459954:							
Chaix	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
459959:							
Churn	85	Somewhat limited		Not limited		Very limited	
		Slope	0.68			Depth to water	1.00
		Seepage	0.03				
459963:							
Cobbly alluvial land	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
459975:							
Colluvial land	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00				
459981:							
Corbett	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.98		
		Depth to bedrock	0.30				

Table 13.—Ponds and Embankments—Continued

Map unit symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
459982:							
Corbett	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	1.00		
		Depth to bedrock	0.45				
459983:							
Corbett	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.98		
		Depth to bedrock	0.30				
459984:							
Corbett	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.98		
		Depth to bedrock	0.30				
459985:							
Diamond Springs	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.11	Depth to water	1.00
		Seepage	0.70				
459986:							
Diamond Springs	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.11	Depth to water	1.00
		Seepage	0.70				
Rock outcrop	15	Not rated		Not rated		Not rated	
459995:							
Goulding	85	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	1.00				
459996:							
Goulding	65	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	1.00				
Rock outcrop	20	Not rated		Not rated		Not rated	
459997:							
Goulding	65	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	1.00				
Rock outcrop	20	Not rated		Not rated		Not rated	
460004:							
Holland	85	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
460005:							
Holland	85	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				

Table 13.—Ponds and Embankments—Continued

Map unit symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460020:							
Josephine	85	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
460028:							
Kanaka	70	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.16	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.16				
Rock outcrop	15	Not rated		Not rated		Not rated	
460029:							
Kanaka	70	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.16	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.16				
Rock outcrop	15	Not rated		Not rated		Not rated	
460030:							
Kanaka	70	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.16	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.16				
Rock outcrop	15	Not rated		Not rated		Not rated	
460034:							
Kidd	85	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	1.00				
460041:							
Landslides	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00	Seepage	1.00		
460054:							
Maymen	85	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
460062:							
Millsholm	85	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	0.53				
460076:							
Neuns	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.99	Seepage	0.50		
		Seepage	0.70				

Table 13.—Ponds and Embankments—Continued

Map unit symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
460077:							
Neuns	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.99	Seepage	0.50		
		Seepage	0.70				
460080:							
Newtown	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.01	Depth to water	1.00
		Seepage	0.03				
460081:							
Newtown	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.01	Depth to water	1.00
		Seepage	0.03				
460098:							
Red Bluff	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.86	Thin layer	0.86	Depth to water	1.00
		Slope	0.68				
		Seepage	0.03				
460103:							
Reiff	85	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.08				
460112:							
Riverwash	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Unstable excavation walls	1.00
				Seepage	1.00		
460113:							
Rockland	100	Not rated		Not rated		Not rated	
460140:							
Stonyford	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00	Thin layer	0.98		
		Depth to bedrock	0.98				
460141:							
Stonyford	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00	Thin layer	0.98		
		Depth to bedrock	0.98				
460147:							
Tailings and placer diggings	95	Not rated		Not rated		Not rated	
1395761:							
Water	100	Not rated		Not rated		Not rated	

Table 14.—Engineering Properties

(Absence of an entry indicates that data were not estimated)

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
459936:												
Auburn	0-8	Loam	ML, CL-ML	A-4	0	0-10	95-100	75-95	70-90	50-80	20-30	NP-10
	8-24	Gravelly loam, gravelly clay loam	SC, SC-SM, GC, GC-GM	A-6, A-4	0	0-10	55-80	50-75	45-70	35-50	25-40	5-15
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
459937:												
Auburn	0-8	Very stony loam	SC, SC-SM, GC, GC-GM	A-6, A-4	5-10	10-15	60-85	55-80	45-75	35-50	25-40	5-15
	8-20	Gravelly loam, gravelly clay loam	SC, SC-SM, GC, GC-GM	A-6, A-4	0	5-10	55-80	50-75	45-70	35-50	25-40	5-15
	20-24	Unweathered bedrock			---	---	---	---	---	---	---	---
459939:												
Auburn	0-5	Very stony clay loam	SC, SC-SM, GC, GC-GM	A-6, A-4	5-10	10-15	60-85	55-80	45-75	35-50	25-40	5-15
	5-27	Gravelly clay loam	GC, CL	A-6	0	5-10	55-80	50-75	45-70	40-55	30-40	10-20
	27-31	Unweathered bedrock			---	---	---	---	---	---	---	---
459940:												
Auburn	0-5	Clay loam	CL	A-6	0	0-10	95-100	75-95	75-90	60-80	30-40	10-20
	5-20	Gravelly clay loam	GC, CL	A-6	0	0-10	55-80	50-75	45-70	40-55	30-40	10-20
	20-24	Unweathered bedrock			---	---	---	---	---	---	---	---
459941:												
Behemotosh	0-16	Very stony loam	SM, GM	A-4	5-10	5-15	55-80	50-75	45-60	35-50	25-40	NP-10
	16-24	Very cobbly loam, very cobbly clay loam	SC, GC	A-7, A-6	0	25-50	55-80	50-75	45-65	35-50	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
459942:												
Behemotosh	0-4	Very stony loam	SM, GM	A-4	5-10	5-15	55-80	50-75	45-60	35-50	25-40	NP-10
	4-16	Gravelly loam	SM, SC-SM	A-4	0	0-5	55-80	50-75	45-60	35-50	25-35	5-10
	16-24	Very cobbly loam, very cobbly clay loam	SC, GC	A-7, A-6	0	25-50	55-80	50-75	45-65	35-50	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
459943:												
Behemotosh	0-4	Very stony loam	SM, GM	A-4	5-10	5-15	55-80	50-75	45-60	35-50	25-40	NP-10
	4-16	Gravelly loam	SM, SC-SM	A-4	0	0-5	55-80	50-75	45-60	35-50	25-35	5-10
	16-24	Very cobbly loam, very cobbly clay loam	SC, GC	A-7, A-6	0	25-50	55-80	50-75	45-65	35-50	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
459945:												
Boomer	0-3	Gravelly loam	SM, GM	A-4	0	0-5	60-80	50-75	40-60	35-50	25-40	NP-10
	3-23	Gravelly sandy clay loam, gravelly clay loam	SC, GC, CL	A-7, A-6	0	0-5	60-80	50-75	45-70	35-60	25-45	10-20
	23-45	Clay loam, silty clay loam	CL	A-7, A-6	0	0-5	85-95	75-95	70-80	50-80	25-45	10-20
	45-49	Weathered bedrock			---	---	---	---	---	---	---	---
459946:												
Boomer	0-3	Gravelly loam	SM, GM	A-4	0	0-5	60-80	50-75	40-60	35-50	25-40	NP-10
	3-23	Gravelly sandy clay loam, gravelly clay loam	SC, GC, CL	A-7, A-6	0	0-5	60-80	50-75	45-70	35-60	25-45	10-20
	23-45	Clay loam, silty clay loam	CL	A-7, A-6	0	0-5	85-95	75-95	70-80	50-80	25-45	10-20
	45-49	Weathered bedrock			---	---	---	---	---	---	---	---
459947:												
Boomer	0-3	Very stony loam	ML	A-4	5-20	5-20	85-95	80-90	65-80	50-60	25-40	NP-10
	3-23	Stony sandy clay loam, stony clay loam	SC, GC, CL	A-7, A-6	5-10	5-10	60-80	50-75	45-70	35-60	25-45	10-20
	23-45	Stony clay loam, cobbly clay loam	CL	A-7, A-6	5-10	5-10	85-100	75-95	70-80	50-80	25-45	10-20
	45-49	Weathered bedrock			---	---	---	---	---	---	---	---
459948:												
Boomer	0-1	Very stony clay loam	CL	A-6	5-20	5-20	85-95	80-90	75-85	60-75	30-40	10-15
	1-20	Stony sandy clay loam, stony clay loam	SC, GC, CL	A-7, A-6	5-10	5-10	60-80	50-75	45-70	35-60	25-45	10-20
	20-30	Stony clay loam, cobbly clay loam	CL	A-7, A-6	5-10	5-10	85-100	75-95	70-80	50-80	25-45	10-20
	30-34	Weathered bedrock			---	---	---	---	---	---	---	---
459950:												
Chaix	0-5	Coarse sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	5-26	Coarse sandy loam, sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	26-30	Weathered bedrock			---	---	---	---	---	---	---	---
459951:												
Chaix	0-5	Coarse sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	5-26	Coarse sandy loam, sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	26-30	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
459952:												
Chaix	0-7	Sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	7-26	Sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	26-30	Weathered bedrock			---	---	---	---	---	---	---	---
459953:												
Chaix	0-9	Sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	9-26	Sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	26-30	Weathered bedrock			---	---	---	---	---	---	---	---
459954:												
Chaix	0-9	Sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	9-26	Sandy loam	SM	A-2	0	0-5	90-100	75-95	45-65	25-35	0-0	NP
	26-30	Weathered bedrock			---	---	---	---	---	---	---	---
459959:												
Churn	0-13	Gravelly loam	SC-SM, SM, GC-GM, GM	A-4	0	0	60-80	55-75	50-70	35-50	25-35	5-10
	13-60	Gravelly loam, gravelly clay loam	GC, CL	A-6	0	0	60-80	55-75	50-70	40-60	30-40	10-20
459981:												
Corbett	0-8	Loamy coarse sand	SM	A-1	0	0-5	80-100	75-95	40-50	10-25	0-0	NP
	8-24	Gravelly loamy coarse sand	SP-SM, SM	A-1	0	0-5	65-95	55-90	30-50	5-20	0-0	NP
	24-28	Weathered bedrock			---	---	---	---	---	---	---	---
459982:												
Corbett	0-4	Loamy coarse sand	SM	A-1	0	0-5	80-100	75-95	40-50	10-25	0-0	NP
	4-20	Gravelly loamy coarse sand	SP-SM, SM	A-1	0	0-5	65-95	55-90	30-50	5-20	0-0	NP
	20-24	Weathered bedrock			---	---	---	---	---	---	---	---
459983:												
Corbett	0-8	Loamy coarse sand	SM	A-1	0	0-5	80-100	75-95	40-50	10-25	0-0	NP
	8-24	Gravelly loamy coarse sand	SP-SM, SM	A-1	0	0-5	65-95	55-90	30-50	5-20	0-0	NP
	24-28	Weathered bedrock			---	---	---	---	---	---	---	---
459984:												
Corbett	0-8	Loamy coarse sand	SM	A-1	0	0-5	80-100	75-95	40-50	10-25	0-0	NP
	8-24	Gravelly loamy coarse sand	SP-SM, SM	A-1	0	0-5	65-95	55-90	30-50	5-20	0-0	NP
	24-28	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
459985:												
Diamond Springs-	0-10	Very stony sandy loam	SM	A-4	5-15	5-10	80-100	75-95	50-70	35-50	20-30	NP-5
	10-15	Sandy loam	SM	A-4	0	0-5	80-100	75-95	50-70	35-50	20-30	NP-5
	15-29	Sandy clay loam	SC	A-6	0	0-5	80-100	75-95	60-80	35-50	30-40	10-20
	29-50	Sandy loam	SM, SC-SM	A-4	0	0-5	80-100	75-95	50-70	35-50	20-30	NP-10
	50-54	Weathered bedrock			---	---	---	---	---	---	---	---
459986:												
Diamond Springs-	0-10	Very stony sandy loam	SM	A-4	5-15	5-10	80-100	75-95	50-70	35-50	20-30	NP-5
	10-15	Sandy loam	SM	A-4	0	0-5	80-100	75-95	50-70	35-50	20-30	NP-5
	15-29	Sandy clay loam	SC	A-6	0	0-5	80-100	75-95	60-80	35-50	30-40	10-20
	29-50	Sandy loam	SM, SC-SM	A-4	0	0-5	80-100	75-95	50-70	35-50	20-30	NP-10
	50-54	Weathered bedrock			---	---	---	---	---	---	---	---
459995:												
Goulding--------	0-5	Very stony loam	SC-SM, SM, GC-GM, GM	A-4	5-15	10-15	55-80	50-75	45-70	35-50	25-35	5-10
	5-16	Gravelly loam	GC-GM, GC	A-2	0	5-10	55-80	50-75	45-70	35-50	25-35	5-10
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
459996:												
Goulding--------	0-5	Very stony loam	SC-SM, SM, GC-GM, GM	A-4	5-15	10-15	55-80	50-75	45-70	35-50	25-35	5-10
	5-16	Gravelly loam	GC-GM, GC	A-2	0	5-10	55-80	50-75	45-70	35-50	25-35	5-10
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
459997:												
Goulding--------	0-5	Very stony loam	SC-SM, SM, GC-GM, GM	A-4	5-15	10-15	55-80	50-75	45-70	35-50	25-35	5-10
	5-16	Gravelly loam	GC-GM, GC	A-2	0	5-10	55-80	50-75	45-70	35-50	25-35	5-10
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
460004:												
Holland---------	0-6	Sandy loam	SM	A-4, A-2	0	0	90-100	85-100	60-70	25-45	20-30	NP-5
	6-34	Sandy clay loam, clay loam	SC, CL	A-6	0	0	90-100	85-100	70-90	40-70	25-40	10-20
	34-60	Sandy loam, loam	SC-SM, SM, CL-ML, ML	A-4	0	0	90-100	85-100	60-85	35-60	20-30	NP-10
460005:												
Holland---------	0-6	Sandy loam	SM	A-4, A-2	0	0	90-100	85-100	60-70	25-45	20-30	NP-5
	6-34	Sandy clay loam, clay loam	SC, CL	A-6	0	0	90-100	85-100	70-90	40-70	25-40	10-20
	34-60	Sandy loam, loam	SC-SM, SM, CL-ML, ML	A-4	0	0	90-100	85-100	60-85	35-60	20-30	NP-10

Table 14.—Engineering Properties—Continued

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
460020:												
Josephine	0-4	Gravelly loam	SM, GM	A-4	0	0-5	55-80	50-75	45-70	35-50	25-35	NP-10
	4-45	Gravelly clay loam, gravelly silty clay loam	GM, ML, CL, GC	A-7, A-6	0	0-5	55-80	50-75	45-70	35-60	35-50	10-25
	45-60	Very stony clay loam	GC-GM, GC	A-6, A-4, A-2	20-40	5-10	35-55	25-50	20-45	15-40	25-40	5-15
	60-64	Weathered bedrock			---	---	---	---	---	---	---	---
460028:												
Kanaka	0-9	Sandy loam	SM	A-4	0	0-5	90-100	85-95	50-70	35-50	0-0	NP
	9-48	Sandy loam, loam	SM	A-4	0	0-5	90-100	85-95	50-70	35-50	20-30	NP-5
	48-52	Weathered bedrock			---	---	---	---	---	---	---	---
460029:												
Kanaka	0-9	Sandy loam	SM	A-4	0	0-5	90-100	85-95	50-70	35-50	0-0	NP
	9-48	Sandy loam, loam	SM	A-4	0	0-5	90-100	85-95	50-70	35-50	20-30	NP-5
	48-52	Weathered bedrock			---	---	---	---	---	---	---	---
460030:												
Kanaka	0-9	Sandy loam	SM	A-4	0	0-5	90-100	85-95	50-70	35-50	0-0	NP
	9-48	Sandy loam, loam	SM	A-4	0	0-5	90-100	85-95	50-70	35-50	20-30	NP-5
	48-52	Weathered bedrock			---	---	---	---	---	---	---	---
460034:												
Kidd	0-8	Gravelly loam	SM, GM	A-4	0	0-5	55-80	50-75	40-60	35-50	25-35	NP-5
	8-16	Very gravelly sandy loam, very gravelly loam	GM	A-2	0	0-10	55-80	40-55	35-50	25-35	25-35	NP-5
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
460054:												
Maymen	0-2	Very stony loam	SM	A-2	10-15	15-30	80-95	75-90	45-80	35-50	20-35	NP-10
	2-13	Gravelly loam	SM, GM	A-2	0	10-15	65-80	60-75	40-70	35-50	20-35	NP-10
	13-17	Unweathered bedrock			---	---	---	---	---	---	---	---
460062:												
Millsholm	0-16	Gravelly loam	SM, GM	A-4	0	0	55-80	50-75	45-70	35-50	25-35	NP-10
	16-20	Unweathered bedrock			---	---	---	---	---	---	---	---
460076:												
Neuns	0-5	Very stony loam	SC-SM, SM, GC-GM, GM	A-4, A-2	10-20	5-10	55-80	50-75	40-65	30-50	15-25	NP-5
	5-23	Gravelly silty clay loam, very gravelly silty clay loam	GC	A-2	0-5	0-10	30-65	25-60	20-50	15-35	30-40	10-20
	23-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
460077:												
Neuns	0-5	Very stony loam	SC-SM, SM, GC-GM, GM	A-4, A-2	10-20	5-10	55-80	50-75	40-65	30-50	15-25	NP-5
	5-23	Gravelly silty clay loam, very gravelly silty clay loam	GC	A-2	0-5	0-10	30-65	25-60	20-50	15-35	30-40	10-20
	23-27	Unweathered bedrock			---	---	---	---	---	---	---	---
460080:												
Newtown	0-8	Gravelly loam	SC-SM, SM, GC-GM, GM	A-4	0	0-5	55-80	50-75	45-60	35-50	25-35	5-10
	8-18	Very gravelly clay loam	GC	A-2	0	0-10	40-60	35-50	30-45	25-35	30-40	10-20
	18-35	Clay loam, clay, silty clay	CL, CH	A-7	0	0	90-100	85-95	70-85	50-70	40-55	20-35
	35-65	Silty clay loam, clay loam	CL	A-7, A-6	0	0	90-100	85-95	70-85	50-70	35-50	15-25
	65-72	Gravelly silty clay loam	CL	A-6	0	15-25	90-100	85-95	65-85	50-70	30-40	10-20
460081:												
Newtown	0-8	Stony loam	SC-SM, SM, GC-GM, GM	A-4	5-10	5-10	55-80	50-75	45-60	35-50	25-35	5-10
	8-18	Very gravelly clay loam	GC	A-2	0	0-10	40-60	35-50	30-45	25-35	30-40	10-20
	18-35	Clay loam, clay, silty clay	CL, CH	A-7	0	0	90-100	85-95	70-85	50-70	40-55	20-35
	35-65	Silty clay loam, clay loam	CL	A-7, A-6	0	0	90-100	85-95	70-85	50-70	35-50	15-25
	65-72	Gravelly silty clay loam	CL	A-6	0	15-25	90-100	85-95	65-85	50-70	30-40	10-20
460098:												
Red Bluff	0-6	Gravelly loam	SC, SC-SM, GC, GC-GM	A-6, A-4	0	0-5	55-90	50-75	45-70	35-50	20-35	5-15
	6-24	Gravelly clay loam	GC, CL	A-6	0	0-5	55-80	50-75	45-70	35-55	30-40	10-20
	24-30	Gravelly clay loam, gravelly clay	CL	A-7, A-6	0	0	55-80	50-75	45-70	40-65	35-50	15-30
	30-40	Indurated bedrock			---	---	---	---	---	---	---	---
460103:												
Reiff	0-18	Sandy loam	SM	A-4	0	0	95-100	75-100	50-70	35-50	20-30	NP-5
	18-43	Stratified sandy loam to loam	SM, SC-SM	A-4	0	0	95-100	75-100	50-80	35-50	20-30	NP-10
	43-60	Stratified sand to loamy sand	SM	A-2, A-1	0	0	95-100	75-95	45-60	15-25	0-0	NP

Table 14.—Engineering Properties—Continued

Map unit symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 in	3-10 in	4	10	40	200		
	In				Pct	Pct					Pct	
460140:												
Stonyford-------	0-9	Very stony loam	GM, ML, CL-ML, GC-GM	A-4	5-20	10-15	65-85	60-80	50-70	35-60	25-35	5-10
	9-24	Gravelly clay loam	SC, GC, CL	A-6	0-5	5-10	65-85	60-80	50-80	40-65	30-40	10-15
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
460141:												
Stonyford-------	0-9	Very stony loam	GM, ML, CL-ML, GC-GM	A-4	5-20	10-15	65-85	60-80	50-70	35-60	25-35	5-10
	9-24	Gravelly clay loam	SC, GC, CL	A-6	0-5	5-10	65-85	60-80	50-80	40-65	30-40	10-15
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Physical Soil Properties

(Sand, silt, and clay values are shown either as a range or as a representative value. Absence of an entry indicates that data were not estimated)

Map unit symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Shrink-swell potential	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
459936:									
Auburn	0-8	43	38	12-25	1.40-1.55	0.6-2.0	0.14-0.16	0.0-2.9	1.0-2.0
	8-24	37	35	25-30	1.40-1.55	0.6-2.0	0.11-0.15	0.0-2.9	0.0-0.5
	24-28				---	0.0-0.1	---	---	---
459937:									
Auburn	0-8	42	38	15-25	1.40-1.55	0.6-2.0	0.09-0.14	0.0-2.9	1.0-2.0
	8-20	37	35	25-30	1.40-1.55	0.6-2.0	0.11-0.15	0.0-2.9	0.0-0.5
	20-24				---	0.0-0.1	---	---	---
459939:									
Auburn	0-5	34	37	27-30	1.40-1.50	0.6-2.0	0.09-0.14	3.0-5.9	1.0-2.0
	5-27	35	34	27-35	1.40-1.50	0.6-2.0	0.11-0.15	3.0-5.9	0.0-0.5
	27-31				---	0.0-0.1	---	---	---
459940:									
Auburn	0-5	34	37	27-30	1.40-1.50	0.6-2.0	0.16-0.19	3.0-5.9	1.0-2.0
	5-20	35	34	27-35	1.40-1.50	0.6-2.0	0.11-0.15	3.0-5.9	0.0-0.5
	20-24				---	0.0-0.1	---	---	---
Rock outcrop.									
459941:									
Behemotosh	0-16	43	40	10-25	1.35-1.45	0.6-2.0	0.11-0.14	0.0-2.9	4.0-8.0
	16-24	36	34	25-35	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	0.0-0.5
	24-28				---	0.0-20.0	---	---	---
459942:									
Behemotosh	0-4	43	40	10-25	1.35-1.45	0.6-2.0	0.11-0.14	0.0-2.9	4.0-8.0
	4-16	42	38	15-25	1.35-1.45	0.6-2.0	0.11-0.14	0.0-2.9	0.5-0.7
	16-24	36	34	25-35	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	0.0-0.5
	24-28				---	0.0-20.0	---	---	---
459943:									
Behemotosh	0-4	43	40	10-25	1.35-1.45	0.6-2.0	0.11-0.14	0.0-2.9	4.0-8.0
	4-16	42	38	15-25	1.35-1.45	0.6-2.0	0.11-0.14	0.0-2.9	0.5-0.7
	16-24	36	34	25-35	1.30-1.40	0.2-0.6	0.05-0.09	3.0-5.9	0.0-0.5
	24-28				---	0.0-20.0	---	---	---
Rock outcrop.									

Table 15.—Physical Soil Properties—Continued

Map unit symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Shrink-swell potential	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
459945:									
Boomer	0-3	40	38	18-27	1.30-1.45	0.6-2.0	0.10-0.15	0.0-2.9	1.0-3.0
	3-23	56	14	25-35	1.30-1.45	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0
	23-45	34	36	25-35	1.30-1.45	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5
	45-49				---	0.0-0.1	---	---	---
459946:									
Boomer	0-3	40	38	18-27	1.30-1.45	0.6-2.0	0.10-0.15	0.0-2.9	1.0-3.0
	3-23	56	14	25-35	1.30-1.45	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0
	23-45	34	36	25-35	1.30-1.45	0.2-0.6	0.15-0.19	3.0-5.9	0.0-0.5
	45-49				---	0.0-0.1	---	---	---
459947:									
Boomer	0-3	40	38	18-27	1.35-1.50	0.6-2.0	0.09-0.13	0.0-2.9	1.0-3.0
	3-23	56	14	25-35	1.35-1.45	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0
	23-45	35	34	27-35	1.30-1.50	0.2-0.6	0.12-0.15	3.0-5.9	0.0-0.5
	45-49				---	0.0-0.1	---	---	---
459948:									
Boomer	0-1	34	37	27-30	1.30-1.45	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0
	1-20	56	14	25-35	1.35-1.45	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0
	20-30	35	34	27-35	1.30-1.50	0.2-0.6	0.12-0.15	3.0-5.9	0.0-0.5
	30-34				---	0.0-0.1	---	---	---
459950:									
Chaix	0-5	68	22	5-15	1.00-1.25	2.0-5.9	0.11-0.13	0.0-2.9	2.0-6.0
	5-26	68	22	5-15	1.35-1.50	2.0-5.9	0.11-0.13	0.0-2.9	0.5-0.7
	26-30				---	0.0-0.1	---	---	---
459951:									
Chaix	0-5	68	22	5-15	1.00-1.25	2.0-5.9	0.11-0.13	0.0-2.9	2.0-6.0
	5-26	68	22	5-15	1.35-1.50	2.0-5.9	0.11-0.13	0.0-2.9	0.5-0.7
	26-30				---	0.0-0.1	---	---	---
459952:									
Chaix	0-7	67	23	5-15	1.00-1.25	2.0-5.9	0.11-0.13	0.0-2.9	2.0-6.0
	7-26	67	23	5-15	1.35-1.50	2.0-5.9	0.11-0.13	0.0-2.9	0.5-0.7
	26-30				---	0.0-0.1	---	---	---
459953:									
Chaix	0-9	67	23	5-15	1.00-1.25	2.0-5.9	0.11-0.13	0.0-2.9	2.0-6.0
	9-26	67	23	5-15	1.35-1.50	2.0-5.9	0.11-0.13	0.0-2.9	0.5-0.7
	26-30				---	0.0-0.1	---	---	---
459954:									
Chaix	0-9	67	23	5-15	1.00-1.25	2.0-5.9	0.11-0.13	0.0-2.9	2.0-6.0
	9-26	67	23	5-15	1.35-1.50	2.0-5.9	0.11-0.13	0.0-2.9	0.5-0.7
	26-30				---	0.0-0.1	---	---	---

Table 15.—Physical Soil Properties—Continued

Map unit symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Shrink-swell potential	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
459959:									
Churn	0-13	43	38	12-25	1.45-1.55	0.6-2.0	0.11-0.14	0.0-2.9	1.0-2.0
	13-60	36	34	25-35	1.40-1.50	0.2-0.6	0.12-0.15	3.0-5.9	0.0-0.5
459963. Cobbly alluvial land									
459975. Colluvial land									
459981:									
Corbett	0-8	79	18	0-5	1.00-1.25	5.9-20.0	0.05-0.08	0.0-2.9	2.0-5.0
	8-24	79	18	0-5	1.30-1.50	5.9-20.0	0.05-0.08	0.0-2.9	1.0-2.0
	24-28				---	0.0-0.1	---	---	---
459982:									
Corbett	0-4	79	18	0-5	1.00-1.25	5.9-20.0	0.05-0.08	0.0-2.9	2.0-5.0
	4-20	79	18	0-5	1.30-1.50	5.9-20.0	0.05-0.08	0.0-2.9	1.0-2.0
	20-24				---	0.0-0.1	---	---	---
459983:									
Corbett	0-8	79	18	0-5	1.00-1.25	5.9-20.0	0.05-0.08	0.0-2.9	2.0-5.0
	8-24	79	18	0-5	1.30-1.50	5.9-20.0	0.05-0.08	0.0-2.9	1.0-2.0
	24-28				---	0.0-0.1	---	---	---
459984:									
Corbett	0-8	79	18	0-5	1.00-1.25	5.9-20.0	0.05-0.08	0.0-2.9	2.0-5.0
	8-24	79	18	0-5	1.30-1.50	5.9-20.0	0.05-0.08	0.0-2.9	1.0-2.0
	24-28				---	0.0-0.1	---	---	---
459985:									
Diamond Springs	0-10	66	19	10-20	1.45-1.55	0.6-2.0	0.08-0.11	0.0-2.9	1.0-2.0
	10-15	66	19	10-20	1.45-1.55	0.6-2.0	0.11-0.13	0.0-2.9	0.5-0.7
	15-29	56	14	25-35	1.45-1.55	0.2-0.6	0.15-0.17	3.0-5.9	0.0-0.5
	29-50	66	19	10-20	1.45-1.55	0.6-2.0	0.09-0.12	0.0-2.9	0.0-0.5
	50-54				---	0.0-0.1	---	---	---
459986:									
Diamond Springs	0-10	66	19	10-20	1.45-1.55	0.6-2.0	0.08-0.11	0.0-2.9	1.0-2.0
	10-15	66	19	10-20	1.45-1.55	0.6-2.0	0.11-0.13	0.0-2.9	0.5-0.7
	15-29	56	14	25-35	1.45-1.55	0.2-0.6	0.15-0.17	3.0-5.9	0.0-0.5
	29-50	66	19	10-20	1.45-1.55	0.6-2.0	0.09-0.12	0.0-2.9	0.0-0.5
	50-54				---	0.0-0.1	---	---	---
Rock outcrop.									

Table 15.—Physical Soil Properties—Continued

Map unit symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Shrink-swell potential	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
459995:									
Goulding--------	0-5	39	37	20-27	1.35-1.50	0.6-2.0	0.08-0.12	0.0-2.9	1.0-2.0
	5-16	39	37	20-27	1.35-1.50	0.6-2.0	0.13-0.15	0.0-2.9	0.0-0.5
	16-20				---	0.0-20.0	---	---	---
459996:									
Goulding--------	0-5	39	37	20-27	1.35-1.50	0.6-2.0	0.08-0.12	0.0-2.9	1.0-2.0
	5-16	39	37	20-27	1.35-1.50	0.6-2.0	0.13-0.15	0.0-2.9	0.0-0.5
	16-20				---	0.0-20.0	---	---	---
Rock outcrop.									
459997:									
Goulding--------	0-5	39	37	20-27	1.35-1.50	0.6-2.0	0.08-0.12	0.0-2.9	1.0-2.0
	5-16	39	37	20-27	1.35-1.50	0.6-2.0	0.13-0.15	0.0-2.9	0.0-0.5
	16-20				---	0.0-20.0	---	---	---
Rock outcrop.									
460004:									
Holland---------	0-6	66	19	10-20	1.10-1.35	2.0-5.9	0.13-0.15	0.0-2.9	2.0-5.0
	6-34	56	14	25-35	1.20-1.40	0.6-2.0	0.14-0.18	3.0-5.9	0.7-1.0
	34-60	66	19	10-20	1.40-1.60	0.6-2.0	0.10-0.16	0.0-2.9	0.0-0.5
460005:									
Holland---------	0-6	66	19	10-20	1.10-1.35	2.0-5.9	0.13-0.15	0.0-2.9	2.0-5.0
	6-34	56	14	25-35	1.20-1.40	0.6-2.0	0.14-0.18	3.0-5.9	0.7-1.0
	34-60	66	19	10-20	1.40-1.60	0.6-2.0	0.10-0.16	0.0-2.9	0.0-0.5
460020:									
Josephine-------	0-4	42	37	15-27	1.20-1.30	0.6-2.0	0.10-0.14	0.0-2.9	2.0-5.0
	4-45	35	34	27-35	1.20-1.40	0.6-2.0	0.10-0.15	3.0-5.9	0.7-1.0
	45-60	34	37	27-30	1.20-1.40	0.6-2.0	0.06-0.10	0.0-2.9	0.0-0.5
	60-64				---	0.2-0.6	---	---	---
460028:									
Kanaka----------	0-9	67	20	8-18	1.50-1.60	2.0-5.9	0.10-0.13	0.0-2.9	1.0-2.0
	9-48	67	20	8-18	1.50-1.60	2.0-5.9	0.10-0.13	0.0-2.9	0.0-0.5
	48-52				---	0.0-0.1	---	---	---
Rock outcrop.									
460029:									
Kanaka----------	0-9	67	20	8-18	1.50-1.50	2.0-5.9	0.10-0.13	0.0-2.9	1.0-2.0
	9-48	67	20	8-18	1.50-1.60	2.0-5.9	0.10-0.13	0.0-2.9	0.0-0.5
	48-52				---	0.0-0.1	---	---	---
Rock outcrop.									

Table 15.—Physical Soil Properties—Continued

Map unit symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Shrink-swell potential	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
460030:									
Kanaka----------	0-9	67	20	8-18	1.50-1.60	2.0-5.9	0.10-0.13	0.0-2.9	1.0-2.0
	9-48	67	20	8-18	1.50-1.60	2.0-5.9	0.10-0.13	0.0-2.9	0.0-0.5
	48-52				---	0.0-0.1	---	---	---
Rock outcrop.									
460034:									
Kidd----------	0-8	38	44	18-18	0.85-0.90	2.0-5.9	0.10-0.14	0.0-2.9	1.0-3.0
	8-16	68	23	9-9	0.85-0.90	2.0-5.9	0.08-0.10	0.0-2.9	0.5-1.0
	16-20				---	0.0-20.0	---	---	---
460041. Landslides									
460054:									
Maymen----------	0-2	43	40	10-25	1.35-1.45	0.6-2.0	0.08-0.12	0.0-2.9	1.0-2.0
	2-13	43	40	10-25	1.40-1.50	0.6-2.0	0.10-0.14	0.0-2.9	0.5-0.7
	13-17				---	0.2-2.0	---	---	---
460062:									
Millsholm-------	0-16	39	37	20-27	1.40-1.50	0.6-2.0	0.10-0.15	0.0-2.9	1.0-3.0
	16-20				---	0.2-2.0	---	---	---
460076:									
Neuns-----------	0-5	42	38	15-25	1.35-1.50	0.6-2.0	0.05-0.08	0.0-2.9	5.0-11
	5-23	18	51	27-35	1.35-1.50	0.6-2.0	0.05-0.08	0.0-2.9	1.0-2.0
	23-27				---	0.2-2.0	---	---	---
460077:									
Neuns-----------	0-5	42	38	15-25	1.35-1.50	0.6-2.0	0.05-0.08	0.0-2.9	5.0-11
	5-23	18	51	27-35	1.35-1.50	0.6-2.0	0.05-0.08	0.0-2.9	1.0-2.0
	23-27				---	0.2-2.0	---	---	---
460080:									
Newtown---------	0-8	42	37	15-27	1.45-1.55	0.6-2.0	0.12-0.14	0.0-2.9	0.5-2.0
	8-18	35	34	27-35	1.40-1.50	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5
	18-35	26	29	35-55	1.35-1.45	0.1-0.2	0.14-0.16	6.0-8.9	0.0-0.5
	35-65	17	48	30-40	1.40-1.50	0.1-0.2	0.17-0.19	3.0-5.9	0.0-0.5
	65-72	18	51	27-35	1.40-1.50	0.2-0.6	0.15-0.17	3.0-5.9	0.0-0.0
460081:									
Newtown---------	0-8	42	37	15-27	1.45-1.55	0.6-2.0	0.12-0.14	0.0-2.9	0.5-2.0
	8-18	35	34	27-35	1.40-1.50	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5
	18-35	26	29	35-55	1.35-1.45	0.1-0.2	0.14-0.16	6.0-8.9	0.0-0.5
	35-65	17	48	30-40	1.40-1.50	0.1-0.2	0.17-0.19	3.0-5.9	0.0-0.5
	65-72	18	51	27-35	1.40-1.50	0.2-0.6	0.15-0.17	3.0-5.9	0.0-0.0

Table 15.—Physical Soil Properties—Continued

Map unit symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Shrink-swell potential	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
460098:									
Red Bluff-------	0-6	42	37	15-27	1.45-1.55	0.6-2.0	0.10-0.14	0.0-2.9	0.5-2.0
	6-24	35	34	27-35	1.45-1.55	0.2-0.6	0.11-0.14	3.0-5.9	0.0-0.5
	24-30	24	29	35-60	1.35-1.60	0.0-0.1	0.12-0.14	3.0-5.9	0.0-0.5
	30-40				---	0.0-0.0	---	---	---
460103:									
Reiff-----------	0-18	67	20	8-18	1.50-1.60	2.0-5.9	0.11-0.13	0.0-2.9	0.5-1.0
	18-43	45	42	8-18	1.50-1.60	2.0-5.9	0.11-0.13	0.0-2.9	0.0-0.5
	43-60	80	17	0-5	1.60-1.70	5.9-20.0	0.05-0.08	0.0-2.9	0.0-0.0
460112. Riverwash									
460113. Rockland									
460140:									
Stonyford-------	0-9	39	37	20-27	1.40-1.50	0.6-2.0	0.10-0.13	0.0-2.9	0.5-2.0
	9-24	35	34	27-35	1.40-1.50	0.2-0.6	0.13-0.15	3.0-5.9	0.5-0.7
	24-28				---	0.0-20.0	---	---	---
460141:									
Stonyford-------	0-9	39	37	20-27	1.40-1.50	0.6-2.0	0.10-0.13	0.0-2.9	0.5-2.0
	9-24	35	34	27-35	1.40-1.50	0.2-0.6	0.13-0.15	3.0-5.9	0.5-0.7
	24-28				---	0.0-20.0	---	---	---
460147. Tailings and placer diggings									
1395761. Water									

Table 16.—Erosion Properties

(Entries under "Erosion factors" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map unit symbol and soil name	Depth (inches)	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
459936:						
Auburn	0-8	.32	.37	2	6	48
	8-24	.20	.37			
	24-28	---	---			
459937:						
Auburn	0-8	.15	.37	2	6	48
	8-20	.20	.37			
	20-24	---	---			
459939:						
Auburn	0-5	.15	.37	2	7	38
	5-27	.20	.37			
	27-31	---	---			
459940:						
Auburn	0-5	.32	.37	2	6	48
	5-20	.20	.37			
	20-24	---	---			
Rock outcrop.						
459941:						
Behemotosh	0-16	.20	.37	1	7	38
	16-24	.20	.37			
	24-28	---	---			
459942:						
Behemotosh	0-4	.20	.37	2	7	38
	4-16	.20	.37			
	16-24	.20	.37			
	24-28	---	---			
459943:						
Behemotosh	0-4	.20	.37	2	7	38
	4-16	.20	.37			
	16-24	.20	.37			
	24-28	---	---			
Rock outcrop.						
459945:						
Boomer	0-3	.20	.32	4	7	38
	3-23	.20	.32			
	23-45	.24	.32			
	45-49	---	---			
459946:						
Boomer	0-3	.20	.32	4	7	38
	3-23	.20	.32			
	23-45	.24	.32			
	45-49	---	---			
459947:						
Boomer	0-3	.15	.32	4	8	0
	3-23	.20	.32			
	23-45	.20	.32			
	45-49	---	---			

Table 16.—Erosion Properties—Continued

Map unit symbol and soil name	Depth (inches)	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
459948:						
Boomer	0-1	.15	.32	4	8	0
	1-20	.20	.32			
	20-30	.20	.32			
	30-34	---	---			
459950:						
Chaix	0-5	.20	.24	3	3	86
	5-26	.20	.24			
	26-30	---	---			
459951:						
Chaix	0-5	.20	.24	3	3	86
	5-26	.20	.24			
	26-30	---	---			
459952:						
Chaix	0-7	.20	.24	3	3	86
	7-26	.20	.24			
	26-30	---	---			
459953:						
Chaix	0-9	.20	.24	3	3	86
	9-26	.20	.24			
	26-30	---	---			
459954:						
Chaix	0-9	.20	.24	3	3	86
	9-26	.20	.24			
	26-30	---	---			
459959:						
Churn	0-13	.20	.37	5	7	38
	13-60	.24	.37			
459963:						
Cobbly alluvial land	0-12	.05	.17	2	3	86
	12-60	.05	.17			
459975:						
Colluvial land	0-6	.02	.32	5	7	38
	6-60	.02	.32			
459981L						
Corbett	0-8	.15	.20	3	2	134
	8-24	.15	.20			
	24-28	---	---			
459982:						
Corbett	0-4	.15	.20	3	2	134
	4-20	.15	.20			
	20-24	---	---			
459983:						
Corbett	0-8	.15	.20	3	2	134
	8-24	.15	.20			
	24-28	---	---			
459984:						
Corbett	0-8	.15	.20	3	2	134
	8-24	.15	.20			
	24-28	---	---			

Table 16.—Erosion Properties—Continued

Map unit symbol and soil name	Depth (inches)	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
459985:						
Diamond Springs	0-10	.24	.37	3	7	38
	10-15	.32	.37			
	15-29	.32	.37			
	29-50	.32	.37			
	50-54	---	---			
459986:						
Diamond Springs	0-10	.24	.37	3	7	38
	10-15	.32	.37			
	15-29	.32	.37			
	29-50	.32	.37			
	50-54	---	---			
Rock outcrop.						
459995:						
Goulding	0-5	.15	.37	1	8	0
	5-16	.24	.37			
	16-20	---	---			
459996:						
Goulding	0-5	.15	.37	1	8	0
	5-16	.24	.37			
	16-20	---	---			
Rock outcrop.						
459997:						
Goulding	0-5	.15	.37	1	8	0
	5-16	.24	.37			
	16-20	---	---			
Rock outcrop.						
460004:						
Holland	0-6	.28	.28	3	3	86
	6-34	.24	.24			
	34-60	.24	.32			
460005:						
Holland	0-6	.28	.28	3	3	86
	6-34	.24	.24			
	34-60	.24	.32			
460020:						
Josephine	0-4	.20	.37	4	7	38
	4-45	.20	.37			
	45-60	.15	.37			
	60-64	---	---			
460028:						
Kanaka	0-9	.24	.32	4	3	86
	9-48	.24	.32			
	48-52	---	---			
Rock outcrop.						
460029:						
Kanaka	0-9	.24	.32	4	3	86
	9-48	.24	.32			
	48-52	---	---			
Rock outcrop.						

Table 16.—Erosion Properties—Continued

Map unit symbol and soil name	Depth (inches)	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
460030:						
Kanaka	0-9	.24	.32	4	3	86
	9-48	.24	.32			
	48-52	---	---			
Rock outcrop.						
460034:						
Kidd	0-8	.20	.32	1	7	38
	8-16	.15	.32			
	16-20	---	---			
460041:						
Landslides	0-60	---	---	---	8	0
460054:						
Maymen	0-2	.20	.32	1	8	0
	2-13	.20	.32			
	13-17	---	---			
460062:						
Millsholm	0-16	.24	.37	1	7	38
	16-20	---	---			
460076:						
Neuns	0-5	.10	.37	2	8	0
	5-23	.10	.37			
	23-27	---	---			
460077:						
Neuns	0-5	.10	.37	2	8	0
	5-23	.10	.37			
	23-27	---	---			
460080:						
Newtown	0-8	.20	.37	5	7	38
	8-18	.15	.43			
	18-35	.28	.28			
	35-65	.32	.43			
	65-72	.32	.43			
460081:						
Newtown	0-8	.20	.37	5	7	38
	8-18	.15	.43			
	18-35	.28	.28			
	35-65	.32	.43			
	65-72	.32	.43			
460098:						
Red Bluff	0-6	.24	.37	2	7	38
	6-24	.24	.37			
	24-30	.20	.28			
	30-40	---	---			
460103:						
Reiff	0-18	.32	.32	5	3	86
	18-43	.32	.37			
	43-60	.28	.28			
460112:						
Riverwash	0-6	.05	.05	---	3	86
	6-60	.05	.05			

Table 16.—Erosion Properties—Continued

Map unit symbol and soil name	Depth (inches)	Erosion factors			Wind erodibility group	Wind erodibility index
		Kw	Kf	T		
460113:						
Rockland	0-10	---	---	---	8	0
460140:						
Stonyford	0-9	.20	.37	1	8	0
	9-24	.24	.37			
	24-28	---	---			
460141:						
Stonyford	0-9	.20	.37	1	8	0
	9-24	.24	.37			
	24-28	---	---			
460147:						
Tailings and placer diggings	0-60	.02	.10	5	8	0
1395761.						
Water						

Table 17.—Total Soil Carbon

(This table displays soil organic carbon (SOC) and soil inorganic carbon (SIC) in kilograms per square meter to a depth of 2 meters or to the representative top depth of any kind of bedrock or any cemented soil horizon. SOC and SIC are reported on a volumetric whole soil basis, corrected for representative rock fragments indicated in the database. SOC is converted from horizon soil organic matter of the fraction of the soil less than 2 mm in diameter. If soil organic matter indicated in the database is NULL, SOC is assumed to be zero. SIC is converted from horizon calcium carbonate content fraction of the soil less than 2 mm in diameter. If horizon calcium carbonate indicated in the database is NULL, SIC is assumed to be zero. A weighted average of all horizons is used in the calculations. Only major components of a map unit are displayed in this table)

Map unit symbol, component name, and component percent	SOC	SIC
	kg/m^2	kg/m^2
459936:		
Auburn (85%)	3	0
459937:		
Auburn (85%)	2	0
459939:		
Auburn (85%)	2	0
459940:		
Auburn (75%)	2	0
Rock outcrop (15%)	0	0
459941:		
Behemotosh (85%)	14	0
459942:		
Behemotosh (85%)	5	0
459943:		
Behemotosh (65%)	5	0
Rock outcrop (15%)	0	0
459945:		
Boomer (85%)	4	0
459946:		
Boomer (85%)	4	0
459947:		
Boomer (85%)	4	0
459948:		
Boomer (85%)	3	0
459950:		
Chaix (85%)	5	0
459951:		
Chaix (85%)	5	0

Table 17.—Total Soil Carbon—Continued

Map unit symbol, component name, and component percent	SOC	SIC
	kg/m^2	kg/m^2
459952:		
Chaix (85%)	6	0
459953:		
Chaix (85%)	7	0
459954:		
Chaix (85%)	7	0
459959:		
Churn (85%)	5	0
459963:		
Cobbly alluvial land (90%)	3	0
459975:		
Colluvial land (90%)	0	0
459981:		
Corbett (85%)	8	0
459982:		
Corbett (85%)	6	0
459983:		
Corbett (85%)	8	0
459984:		
Corbett (65%)	8	0
459985:		
Diamond Springs (85%)	5	0
459986:		
Diamond Springs (70%)	5	0
Rock outcrop (15%)	0	0
459995:		
Goulding (85%)	1	0
459996:		
Goulding (65%)	1	0
Rock outcrop (20%)	0	0
459997:		
Goulding (65%)	1	0
Rock outcrop (20%)	0	0
460004:		
Holland (85%)	9	0
460005:		
Holland (85%)	9	0
460020:		
Josephine (85%)	7	0

Table 17.—Total Soil Carbon—Continued

Map unit symbol, component name, and component percent	SOC	SIC
	kg/m^2	kg/m^2
460028:		
Kanaka (70%)	5	0
Rock outcrop (15%)	0	0
460029:		
Kanaka (70%)	5	0
Rock outcrop (15%)	0	0
460030:		
Kanaka (70%)	5	0
Rock outcrop (15%)	0	0
460034:		
Kidd (85%)	2	0
460041:		
Landslides (85%)	0	0
460054:		
Maymen (85%)	1	0
460062:		
Millsholm (85%)	5	0
460076:		
Neuns (85%)	8	0
460077:		
Neuns (85%)	8	0
460080:		
Newtown (85%)	4	0
460081:		
Newtown (85%)	4	0
460098:		
Red Bluff (85%)	2	0
460103:		
Reiff (85%)	4	0
460112:		
Riverwash (100%)	0	0
460113:		
Rockland (100%)	0	0
460140:		
Stonyford (85%)	3	0
460141:		
Stonyford (85%)	3	0
460147:		
Tailings and placer diggings (95%)	0	0
1395761:		
Water (100%)	0	0

Table 18.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated)

Map unit symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
459936:				
Auburn	0-8	15.0-20.0	---	5.6-6.5
	8-24	10.0-20.0	---	5.6-6.5
	24-28	---	---	---
459937:				
Auburn	0-8	15.0-20.0	---	5.6-6.5
	8-20	15.0-20.0	---	5.6-6.5
	20-24	---	---	---
459939:				
Auburn	0-5	20.0-20.0	---	5.6-6.5
	5-27	20.0-30.0	---	5.6-6.5
	27-31	---	---	---
459940:				
Auburn	0-5	20.0-30.0	---	5.6-6.5
	5-20	20.0-30.0	---	5.6-6.5
	20-24	---	---	---
459941:				
Behemotosh	0-16	10.0-15.0	---	5.1-6.5
	16-24	---	10.0-20.0	4.5-6.0
	24-28	---	---	---
459942:				
Behemotosh	0-4	10.0-15.0	---	5.1-6.5
	4-16	10.0-15.0	---	5.1-6.5
	16-24	---	10.0-20.0	4.5-6.0
	24-28	---	---	---
459943:				
Behemotosh	0-4	10.0-15.0	---	5.1-6.5
	4-16	10.0-15.0	---	5.1-6.5
	16-24	---	10.0-20.0	4.5-6.0
	24-28	---	---	---
459945:				
Boomer	0-3	15.0-20.0	---	5.1-6.5
	3-23	20.0-35.0	---	5.1-6.5
	23-45	20.0-35.0	---	5.1-6.5
	45-49	---	---	---
459946:				
Boomer	0-3	15.0-20.0	---	5.1-6.5
	3-23	20.0-25.0	---	5.1-6.5
	23-45	20.0-35.0	---	5.1-6.5
	45-49	---	---	---
459947:				
Boomer	0-3	10.0-20.0	---	5.1-6.5
	3-23	---	20.0-35.0	5.1-5.5
	23-45	20.0-35.0	---	5.1-6.5
	45-49	---	---	---

Table 18.—Chemical Soil Properties—Continued

Map unit symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
459948:				
Boomer	0-1	15.0-20.0	---	5.1-6.5
	1-20	20.0-35.0	---	5.1-6.5
	20-30	20.0-35.0	---	5.1-6.5
	30-34	---	---	---
459950:				
Chaix	0-5	10.0-15.0	---	5.1-7.3
	5-26	10.0-15.0	---	5.1-6.0
	26-30	---	---	---
459951:				
Chaix	0-5	10.0-15.0	---	5.1-7.3
	5-26	10.0-15.0	---	5.1-6.0
	26-30	---	---	---
459952:				
Chaix	0-7	10.0-15.0	---	5.1-7.3
	7-26	10.0-15.0	---	5.1-6.0
	26-30	---	---	---
459953:				
Chaix	0-9	10.0-15.0	---	5.1-7.3
	9-26	10.0-15.0	---	5.1-6.0
	26-30	---	---	---
459954:				
Chaix	0-9	10.0-15.0	---	5.1-7.3
	9-26	10.0-15.0	---	5.1-6.0
	26-30	---	---	---
459959:				
Churn	0-13	10.0-20.0	---	5.1-6.0
	13-60	15.0-25.0	---	5.1-6.0
459981:				
Corbett	0-8	5.0-10.0	---	5.1-6.5
	8-24	5.0-10.0	---	5.1-6.5
	24-28	---	---	---
459982:				
Corbett	0-4	5.0-10.0	---	5.1-6.5
	4-20	5.0-10.0	---	5.1-6.5
	20-24	---	---	---
459983:				
Corbett	0-8	5.0-10.0	---	5.1-6.5
	8-24	5.0-10.0	---	5.1-6.5
	24-28	---	---	---
459984:				
Corbett	0-8	5.0-10.0	---	5.1-6.5
	8-24	5.0-10.0	---	5.1-6.5
	24-28	---	---	---

Table 18.—Chemical Soil Properties—Continued

Map unit symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
459985:				
Diamond Springs	0-10	---	5.0-10.0	4.5-6.0
	10-15	---	5.0-10.0	4.5-6.0
	15-29	---	5.0-15.0	4.5-5.5
	29-50	---	1.0-10.0	4.5-5.5
	50-54	---	---	---
459986:				
Diamond Springs	0-10	---	5.0-10.0	4.5-6.0
	10-15	---	5.0-10.0	4.5-6.0
	15-29	---	5.0-15.0	4.5-5.5
	29-50	---	5.0-10.0	4.5-5.5
	50-54	---	---	---
459995:				
Goulding	0-5	10.0-20.0	---	5.6-6.5
	5-16	10.0-20.0	---	5.6-6.5
	16-20	---	---	---
459996:				
Goulding	0-5	15.0-20.0	---	5.6-6.5
	5-16	10.0-20.0	---	5.6-6.5
	16-20	---	---	---
459997:				
Goulding	0-5	10.0-20.0	---	5.6-6.5
	5-16	10.0-20.0	---	5.6-6.5
	16-20	---	---	---
460004:				
Holland	0-6	15.0-20.0	---	5.1-6.5
	6-34	---	15.0-20.0	4.5-6.0
	34-60	---	10.0-15.0	4.5-6.0
460005:				
Holland	0-6	15.0-20.0	---	5.1-6.5
	6-34	---	15.0-20.0	4.5-6.0
	34-60	---	10.0-15.0	4.5-6.0
460020:				
Josephine	0-4	15.0-25.0	---	5.6-6.5
	4-45	10.0-20.0	---	5.1-6.0
	45-60	10.0-15.0	---	5.1-6.0
	60-64	---	---	---
460028:				
Kanaka	0-9	5.0-10.0	---	5.1-6.0
	9-48	---	5.0-10.0	4.5-5.5
	48-52	---	---	---
460029:				
Kanaka	0-9	5.0-10.0	---	5.1-6.0
	9-48	---	5.0-10.0	4.5-5.5
	48-52	---	---	---
460030:				
Kanaka	0-9	5.0-10.0	---	5.1-6.0
	9-48	---	5.0-10.0	4.5-5.5
	48-52	---	---	---

Table 18.—Chemical Soil Properties—Continued

Map unit symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
460034:				
Kidd	0-8	10.0-25.0	---	5.6-6.0
	8-16	---	5.0-10.0	4.5-6.0
	16-20	---	---	---
460054:				
Maymen	0-2	5.0-15.0	---	5.1-6.5
	2-13	5.0-15.0	---	5.1-6.5
	13-17	---	---	---
460062:				
Millsholm	0-16	15.0-20.0	---	5.1-7.3
	16-20	---	---	---
460076:				
Neuns	0-5	15.0-25.0	---	5.1-6.0
	5-23	10.0-20.0	---	5.1-6.0
	23-27	---	---	---
460077:				
Neuns	0-5	15.0-25.0	---	5.1-6.0
	5-23	5.0-20.0	---	5.1-6.0
	23-27	---	---	---
460080:				
Newtown	0-8	10.0-20.0	---	5.1-6.5
	8-18	15.0-20.0	---	5.1-6.5
	18-35	30.0-45.0	---	5.1-6.0
	35-65	20.0-30.0	---	5.1-6.5
	65-72	15.0-20.0	---	6.1-7.3
460081:				
Newtown	0-8	10.0-20.0	---	5.1-6.5
	8-18	15.0-20.0	---	5.1-6.5
	18-35	30.0-45.0	---	5.1-6.0
	35-65	20.0-30.0	---	5.1-6.5
	65-72	15.0-20.0	---	6.1-7.3
460098:				
Red Bluff	0-6	---	5.0-15.0	4.5-6.0
	6-24	---	5.0-15.0	4.5-6.0
	24-30	---	5.0-15.0	4.5-6.0
	30-40	---	---	---
460103:				
Reiff	0-18	5.0-15.0	---	5.6-6.5
	18-43	5.0-10.0	---	6.1-7.3
	43-60	1.0-5.0	---	6.1-7.3
460140:				
Stonyford	0-9	15.0-25.0	---	5.6-7.3
	9-24	10.0-20.0	---	5.6-7.3
	24-28	---	---	---
460141:				
Stonyford	0-9	15.0-25.0	---	5.6-7.3
	9-24	10.0-20.0	---	5.6-7.3
	24-28	---	---	---

Table 19.—Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map unit symbol and soil name	Hydrologic group	Months	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
459936:									
Auburn	D								
		Jan-Dec	---	---	---	---	None	---	None
459937:									
Auburn	D								
		Jan-Dec	---	---	---	---	None	---	None
459939:									
Auburn	D								
		Jan-Dec	---	---	---	---	None	---	None
459940:									
Auburn	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
459941:									
Behemotosh	C								
		Jan-Dec	---	---	---	---	None	---	None
459942:									
Behemotosh	C								
		Jan-Dec	---	---	---	---	None	---	None
459943:									
Behemotosh	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
459945:									
Boomer	B								
		Jan-Dec	---	---	---	---	None	---	None
459946:									
Boomer	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map unit symbol and soil name	Hydrologic group	Months	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
459947:									
Boomer	B								
		Jan-Dec	---	---	---	---	None	---	None
459948:									
Boomer	C								
		Jan-Dec	---	---	---	---	None	---	None
459950:									
Chaix	B								
		Jan-Dec	---	---	---	---	None	---	None
459951:									
Chaix	B								
		Jan-Dec	---	---	---	---	None	---	None
459952:									
Chaix	B								
		Jan-Dec	---	---	---	---	None	---	None
459953:									
Chaix	B								
		Jan-Dec	---	---	---	---	None	---	None
459954:									
Chaix	B								
		Jan-Dec	---	---	---	---	None	---	None
459959:									
Churn	B								
		Jan-Dec	---	---	---	---	None	---	None
459963:									
Cobbly alluvial land	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		April	---	---	---	---	None	Brief	Rare
		May	---	---	---	---	None	Brief	Rare
		June	---	---	---	---	None	Brief	Rare
		July	---	---	---	---	None	Brief	Rare
		August	---	---	---	---	None	Brief	Rare
		September	---	---	---	---	None	Brief	Rare
		October	---	---	---	---	None	Brief	Rare
		November	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare

Table 19.—Water Features—Continued

Map unit symbol and soil name	Hydrologic group	Months	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
459975:									
Colluvial land	A								
		Jan-Dec	---	---	---	---	None	---	None
459981:									
Corbett	B								
		Jan-Dec	---	---	---	---	None	---	None
459982:									
Corbett	B								
		Jan-Dec	---	---	---	---	None	---	None
459983:									
Corbett	B								
		Jan-Dec	---	---	---	---	None	---	None
459984:									
Corbett	B								
		Jan-Dec	---	---	---	---	None	---	None
459985:									
Diamond Springs	B								
		Jan-Dec	---	---	---	---	None	---	None
459986:									
Diamond Springs	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
459995:									
Goulding	D								
		Jan-Dec	---	---	---	---	None	---	None
459996:									
Goulding	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
459997:									
Goulding	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									

Table 19.—Water Features—Continued

Map unit symbol and soil name	Hydrologic group	Months	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
460004:									
Holland	B								
		Jan-Dec	---	---	---	---	None	---	None
460005:									
Holland	B								
		Jan-Dec	---	---	---	---	None	---	None
460020:									
Josephine	B								
		Jan-Dec	---	---	---	---	None	---	None
460028:									
Kanaka	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
460029:									
Kanaka	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
460030:									
Kanaka	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
460034:									
Kidd	D								
		Jan-Dec	---	---	---	---	None	---	None
460041:									
Landslides	A								
		Jan-Dec	---	---	---	---	None	---	None
460054:									
Maymen	D								
		Jan-Dec	---	---	---	---	None	---	None
460062:									
Millsholm	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map unit symbol and soil name	Hydrologic group	Months	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
460076:									
Neuns	C								
		Jan-Dec	---	---	---	---	None	---	None
460077:									
Neuns	C								
		Jan-Dec	---	---	---	---	None	---	None
460080:									
Newtown	C								
		Jan-Dec	---	---	---	---	None	---	None
460081:									
Newtown	C								
		Jan-Dec	---	---	---	---	None	---	None
460098:									
Red Bluff	C								
		Jan-Dec	---	---	---	---	None	---	None
460103:									
Reiff	B								
		January	---	---	---	---	None	Brief	Rare
		February	---	---	---	---	None	Brief	Rare
		March	---	---	---	---	None	Brief	Rare
		Apr-Oct	---	---	---	---	None	---	None
		November	---	---	---	---	None	Brief	Rare
		December	---	---	---	---	None	Brief	Rare
460112:									
Riverwash	D								
		January	1.0	>6.0	---	---	None	Long	Frequent
		February	1.0	>6.0	---	---	None	Long	Frequent
		March	1.0	>6.0	---	---	None	Long	Frequent
		April	1.0	>6.0	---	---	None	Long	Frequent
		May-Oct	---	---	---	---	None	---	None
		November	1.0	>6.0	---	---	None	---	None
		December	1.0	>6.0	---	---	None	Long	Frequent
460113:									
Rockland	D								
		Jan-Dec	---	---	---	---	None	---	None
460140:									
Stonyford	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map unit symbol and soil name	Hydrologic group	Months	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
460141: Stonyford	D	Jan-Dec	---	---	---	---	None	---	None
460147. Tailings and placer diggings									
1395761. Water									

Table 20.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that data were not estimated)

Map unit symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
459936:						
Auburn	Lithic bedrock	24-28	Strongly cemented	None	Moderate	Moderate
459937:						
Auburn	Lithic bedrock	20-24	Strongly cemented	None	Moderate	Moderate
459939:						
Auburn	Lithic bedrock	27-31	Strongly cemented	None	Moderate	Moderate
459940:						
Auburn	Lithic bedrock	20-24	Strongly cemented	None	Moderate	Moderate
Rock outcrop.						
459941:						
Behemotosh	Lithic bedrock	24-28	Indurated	Moderate	Moderate	Moderate
459942:						
Behemotosh	Lithic bedrock	24-28	Indurated	Moderate	Moderate	Moderate
459943:						
Behemotosh	Lithic bedrock	24-28	Indurated	Moderate	Moderate	Moderate
Rock outcrop.						
459945:						
Boomer	Paralithic bedrock	45-49	Moderately cemented	Moderate	Moderate	Moderate
459946:						
Boomer	Paralithic bedrock	45-49	Moderately cemented	Moderate	Moderate	Moderate
459947:						
Boomer	Paralithic bedrock	45-49	Moderately cemented	Moderate	Moderate	Moderate
459948:						
Boomer	Paralithic bedrock	30-49	Moderately cemented	Moderate	Moderate	Moderate
459950:						
Chaix	Paralithic bedrock	26-30	Weakly cemented	Moderate	Low	Moderate

Table 20.—Soil Features—Continued

Map unit symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
459951:						
Chaix	Paralithic bedrock	26-30	Weakly cemented	Moderate	Low	Moderate
459952:						
Chaix	Paralithic bedrock	26-30	Weakly cemented	Moderate	Low	Moderate
459953:						
Chaix	Paralithic bedrock	26-30	Weakly cemented	Moderate	Low	Moderate
459954:						
Chaix	Paralithic bedrock	26-30	Weakly cemented	Moderate	Low	Moderate
459959:						
Churn	---	---	---	None	Moderate	Moderate
459963.						
Cobbly alluvial land						
459975.						
Colluvial land						
459981:						
Corbett	Paralithic bedrock	24-28	Moderately cemented	Low	Low	Moderate
459982:						
Corbett	Paralithic bedrock	20-24	Moderately cemented	Low	Low	Moderate
459983:						
Corbett	Paralithic bedrock	24-28	Moderately cemented	Low	Low	Moderate
459984:						
Corbett	Paralithic bedrock	24-28	Moderately cemented	Low	Low	Moderate
459985:						
Diamond Springs	Paralithic bedrock	50-54	Moderately cemented	None	Moderate	High

Table 20.—Soil Features—Continued

Map unit symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
459986:						
Diamond Springs	Paralithic bedrock	50-54	Moderately cemented	None	Moderate	High
Rock outcrop.						
459995:						
Goulding	Lithic bedrock	16-20	Strongly cemented	Moderate	Low	Moderate
459996:						
Goulding	Lithic bedrock	16-20	Strongly cemented	Moderate	Low	Moderate
Rock outcrop.						
459997:						
Goulding	Lithic bedrock	16-20	Strongly cemented	Moderate	Low	Moderate
Rock outcrop.						
460004:						
Holland	Abrupt textural change	34-60	Weakly cemented	Moderate	Moderate	Moderate
460005:						
Holland	Abrupt textural change	34-60	Weakly cemented	Moderate	Moderate	Moderate
460020:						
Josephine	Paralithic bedrock	60-64	Weakly cemented	Moderate	Moderate	Moderate
460028:						
Kanaka	Lithic bedrock	48-52	Indurated	None	Low	High
Rock outcrop.						
460029:						
Kanaka	Lithic bedrock	48-52	Indurated	None	Low	High
Rock outcrop.						
460030:						
Kanaka	Lithic bedrock	48-52	Indurated	None	Low	High
Rock outcrop.						

Table 20.—Soil Features—Continued

Map unit symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
460034: Kidd	Lithic bedrock	16-20	Very strongly cemented	None	Low	Moderate
460041. Landslides						
460054: Maymen	Lithic bedrock	13-17	Very strongly cemented	None	Low	Moderate
460062: Millsholm	Lithic bedrock	16-20	Very strongly cemented	None	Low	Moderate
460076: Neuns	Lithic bedrock	23-27	Very strongly cemented	None	Moderate	Moderate
460077: Neuns	Lithic bedrock	23-27	Very strongly cemented	None	Moderate	Moderate
460080: Newtown	---	---	---	None	High	Moderate
460081: Newtown	---	---	---	None	High	Moderate
460098: Red Bluff	Duripan	30-40	Strongly cemented	None	High	Moderate
460103: Reiff	---	---	---	None	Low	Low
460112. Riverwash						
460113: Rockland	Lithic bedrock	0-10	Strongly cemented	None	---	---
460140: Stonyford	Lithic bedrock	24-28	Very strongly cemented	None	Moderate	Moderate
460141: Stonyford	Lithic bedrock	24-28	Very strongly cemented	None	Moderate	Moderate

Table 20.—Soil Features—Continued

Map unit symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
460147. Tailings and placer diggings						
1395761. Water						

Table 21.—Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Auburn	Loamy, oxidic, thermic Ruptic-Lithic Xerochrepts
Behemotosh	Loamy-skeletal, mixed, mesic Ultic Haploxeralfs
Boomer	Fine-loamy, mixed, mesic Ultic Haploxeralfs
Chaix	Coarse-loamy, mixed, mesic Dystric Xerochrepts
Churn	Fine-loamy, mixed, thermic Ultic Haploxeralfs
Corbett	Mixed, frigid Dystric Xeropsamments
Diamond Springs	Fine-loamy, mixed, mesic Typic Haploxerults
Goulding	Loamy-skeletal, mixed, mesic Lithic Xerochrepts
Goulding taxadjunct	Loamy-skeletal, mixed, mesic Lithic Xerochrepts
Holland	Fine-loamy, mixed, mesic Ultic Haploxeralfs
Josephine	Fine-loamy, mixed, mesic Typic Haploxerults
Kanaka	Coarse-loamy, mixed, thermic Dystric Xerochrepts
Kidd	Medial, mesic Lithic Vitrandepts
Maymen	Loamy, mixed, mesic Dystric Lithic Xerochrepts
Millsholm	Loamy, mixed, thermic Lithic Xerochrepts
Neuns	Loamy-skeletal, mixed, mesic Dystric Xerochrepts
Newtown	Fine, montmorillonitic, thermic Ultic Haploxeralfs
Red Bluff taxadjunct	Fine, mixed, thermic Abruptic Durixeralfs
Reiff taxadjunct	Coarse-loamy, mixed, nonacid, thermic Mollic Xerofluvents
Stonyford	Loamy, mixed, thermic Lithic Mollic Haploxeralfs

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WHISKEYTOWN UNIT

0 0.5 1 2 Kilometers
0 0.5 1 2 Miles

North

Willow Creek
7.8mi 12.5km
To French Gulch 3.2mi 5.2km
TRINITY MOUNTAIN RD
106
0.6mi 1.0km
Crystal Creek Water Ditch Trail
Tower Gravesite
Camden House
TOWER HOUSE HISTORIC DISTRICT
Camden Water Ditch Trail
El Dorado Mine
Clear Creek
Merry Mountain Trail
Merry Mountain 2983ft 909m
GRIZZLY GULCH
Dead End/Private Property
Whiskey Creek
Boulder Creek
Spring Creek
South Fork Mountain Lookout 3447ft 1050m
1.3mi 2.1km
Vista Trail
CRYSTAL CREEK ROAD
4.0mi 6.4km
299
To Weaverville 23mi 37km
Buckhorn Summit 3212ft 979m
COUNTY LINE ROAD
Mill Creek Trail
Crystal Creek Falls
Crystal Creek
James K. Carr Trail
Whiskeytown Falls
BULL GULCH
Oak Bottom
Amphitheater
Marina
NEW YORK GULCH
1.6mi 2.6km
Whiskey Creek Group Picnic Area (reservations only)
Whiskey Creek
2.5mi 4.0km
1.1mi 2.7km
0.5mi 0.8km
2.0mi 3.2km
Oak Bottom Ditch Trail
MILL CREEK ROAD
Penstocks
Judge Francis Carr Powerhouse
SOUTH SHORE DRIVE
1.8mi 2.9km
Mill Creek
5.3mi 8.5km
7.0mi 11.3km
Boulder Creek Trail
Boulder creek
Boulder Creek Falls
Dry Creek Group Camp (reservations only)
SOUTH SHORE DRIVE
WHISKEYTOWN LAKE
1210ft 369m
CRADDOCK GULCH
SOUTH FORK MOUNTAIN LOOKOUT ROAD
2.6mi 4.2km
Marina
1.4mi 2.3km
Trailer Camp (self-contained RVs only)
Brandy Creek
Davis Gulch Trail
Park Headquarters
East Beach
1.0mi 1.6km
J.F. KENNEDY MEMORIAL DRIVE
0.6mi 1.0km
Visitor Center
Shasta Divide Nature Trail
Visitor Center to Redding 8mi 13 km
299
SHASTA
Shasta State Historic Park
Glory Hole Spillway
Kennedy Memorial
Clair A. Hill Whiskeytown Dam
1.2mi 1.9km
PAIGE BAR ROAD
Buckhorn Bally
12.4mi 20.0km
Crystal Creek
5.0mi 8.0km
Coggins Park
Shasta Bally Trail
Shasta Bally 6199ft 1889m
Boulder Creek
Papoose Pass Trail
Papoose Pass
SHASTA BALLY ROAD
5.6mi 9.0km
Sheep Camp
Brandy Creek
Brandy Creek Trail
1.2mi 1.9km
1.4mi 2.3km
Monarch Mountain Trail
DOG GULCH
Panther Gap
Monarch Mountain 2550ft 777m
Brandy Creek Falls Trail
Rich Gulch Trail
Brandy Creek Falls
Brandy Creek
PELTIER VALLEY ROAD
3.6 mi 5.9km
Salt Gulch Trail
Peltier Trail
Peltier Bridge
0.7mi 1.1km
Mount Shasta Mine Loop Trail
Whiskeytown Cemetery
Mount Shasta Mine
Clear Creek Canal Trail
1.0mi 1.6km
Logging Camp Trail
Kanaka Peak Loop Trail
Kanaka Cut Off Trail
Paige Boulder Creek
N.E.E.D. Camp-Whiskeytown Environmental School
Guardian Rock Trail
Horse Camp
Buck Hollow Trail
MULE TOWN ROAD
4.4mi 7.1km
Salt Creek Loop Trail
Clear Creek
Kanaka Peak 2616ft 797m
Kanaka Creek
Mule Mountain 2325ft 709m
Mule Mountain Pass Trail
To Swasey Drive
To Igo 8mi 13km
To Bully Choop Fire Lookout
Shoemaker Bally 5955ft 1815m
Little Bally
South Fork Mountain 5191ft 1582m

Area closed to boating
Boating area with restricted speed limit
0.5mi 0.8km Distance indicator
Unpaved road
4-wheel-drive only road
Hiking trail
Ranger station
Boat launch
Picnic area
Wheelchair-accessible
Telephone
Sanitary disposal station
Campground
Primitive campground

Note: roads and trails may be closed in winter.

Map Sheet Number

24k Quadrangle Name

Park Boundary (2012)

USGS 24k Quadrangle

North

Scale 1:63,360
1 Inch = 1.61 Kilometers
0 1 2 3 4 Kilometers

0 1 2 3 4 Miles
1 Inch = 1.00 Miles

INDEX TO MAP SHEETS **Whiskeytown National Recreation Area, California**

U.S. DEPARMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

MAP UNIT LEGEND
WHISKEYTOWN NATIONAL RECREATION AREA, CALIFORNIA

U.S. DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

SYMBOL	NAME
459936	Auburn loam, 8 to 30 percent slopes
459937	Auburn very stony loam, 8 to 30 percent slopes
459939	Auburn very stony clay loam, 30 to 50 percent slopes, eroded
459940	Auburn very rocky clay loam, 50 to 70 percent slopes, eroded
459941	Behemotosh very stony loam, 8 to 30 percent slopes
459942	Behemotosh very stony loam, 30 to 50 percent slopes, eroded
459943	Behemotosh very rocky loam, 50 to 70 percent slopes, eroded
459945	Boomer gravelly loam, 15 to 30 percent slopes
459946	Boomer gravelly loam, 30 to 50 percent slopes
459947	Boomer very stony loam, 50 to 70 percent slopes
459948	Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded
459950	Chaix coarse sandy loam, 30 to 50 percent slopes, severely eroded
459951	Chaix coarse sandy loam, 50 to 70 percent slopes, severely eroded
459952	Chaix sandy loam, 5 to 30 percent slopes, eroded
459953	Chaix sandy loam, 30 to 50 percent slopes
459954	Chaix sandy loam, 50 to 70 percent
459959	Churn gravelly loam, 3 to 8 percent slopes
459963	Cobbly alluvial land
459975	Colluvial land
459981	Corbett loamy coarse sand, 15 to 50 percent slopes
459982	Corbett loamy coarse sand, 30 to 70 percent slopes, severely eroded
459983	Corbett loamy coarse sand, 50 to 80 percent slopes
459984	Corbett very rocky loamy coarse sand, 30 to 80 percent slopes
459985	Diamond Springs very stony sandy loam, 8 to 30 percent slopes, eroded
459986	Diamond Springs very rocky sandy loam, 30 to 50 percent slopes, eroded
459995	Goulding very stony loam, 10 to 30 percent slopes
459996	Goulding very rocky loam, 30 to 50 percent slopes, eroded
459997	Goulding very rocky loam, 50 to 70 percent slopes, eroded
460004	Holland sandy loam, 15 to 50 percent slopes
460005	Holland sandy loam, 50 to 70 percent slopes
460020	Josephine gravelly loam, 50 to 70 percent slopes
460028	Kanaka rocky sandy loam, 5 to 30 percent slopes
460029	Kanaka rocky sandy loam, 30 to 50 percent slopes
460030	Kanaka rocky sandy loam, 50 to 70 percent slopes, eroded
460034	Kidd very rocky loam, 10 to 60 percent slopes, eroded
460041	Landslides
460054	Maymen very stony loam, 30 to 80 percent slopes, eroded
460062	Millsholm gravelly loam, 50 to 75 percent slopes
460076	Neuns very stony loam, 8 to 50 percent slopes
460077	Neuns very stony loam, 50 to 80 percent slopes
460080	Newtown gravelly loam, 30 to 50 percent slopes, eroded
460081	Newtown stony loam, 8 to 50 percent slopes, eroded
460098	Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes
460103	Reiff sandy loam, channeled, 0 to 8 percent slopes
460112	Riverwash
460113	Rockland
460140	Stonyford very stony loam, 30 to 50 percent slopes
460141	Stonyford very stony loam, 50 to 75 percent slopes
460147	Tailings and placer diggings
1395761	Water

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SOIL SURVEY OF WHISKEYTOWN NATIONAL RECREATION AREA, CALIFORNIA
FRENCH GULCH QUADRANGLE
SHEET NUMBER 1 OF 4

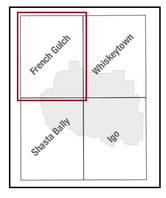
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, at the request of the Department of the Interior, National Park Service. Base maps are orthophotographs prepared by the U.S. Department of Agriculture, Farm Service Agency from 2006 - 2011 aerial photographs. A 2012 National Park Service boundary was used. Soil information was derived from USDA/NRCS Soil Survey Geographic (SSURGO) database for Whiskeytown National Recreation Area. Universal Transverse Mercator Zone 10 North, North American Datum of 1983 (NAD83).

NRCS Natural Resources Conservation Service

0 5,000 10,000 Feet
0 1 2 3 Kilometers
0 1 2 Miles

SCALE 1:24,000

North



Whiskeytown National Recreation Area, California

Sheet 1 of 4

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SOIL SURVEY OF WHISKEYTOWN NATIONAL RECREATION AREA, CALIFORNIA
WHISKEYTOWN QUADRANGLE
SHEET NUMBER 2 OF 4

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, at the request of the Department of the Interior, National Park Service. Base maps are orthophotographs prepared by the U.S. Department of Agriculture, Farm Service Agency from 2006 - 2011 aerial photographs. A 2012 National Park Service boundary was used. Soil information was derived from USDA/NRCS Soil Survey Geographic (SSURGO) database for Whiskeytown National Recreation Area. Universal Transverse Mercator Zone 10 North, North American Datum of 1983 (NAD83).

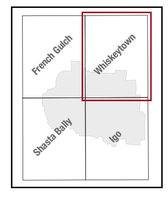
0 5,000 10,000 Feet

0 1 2 3 Kilometers

0 1 2 Miles

SCALE 1:24,000

North



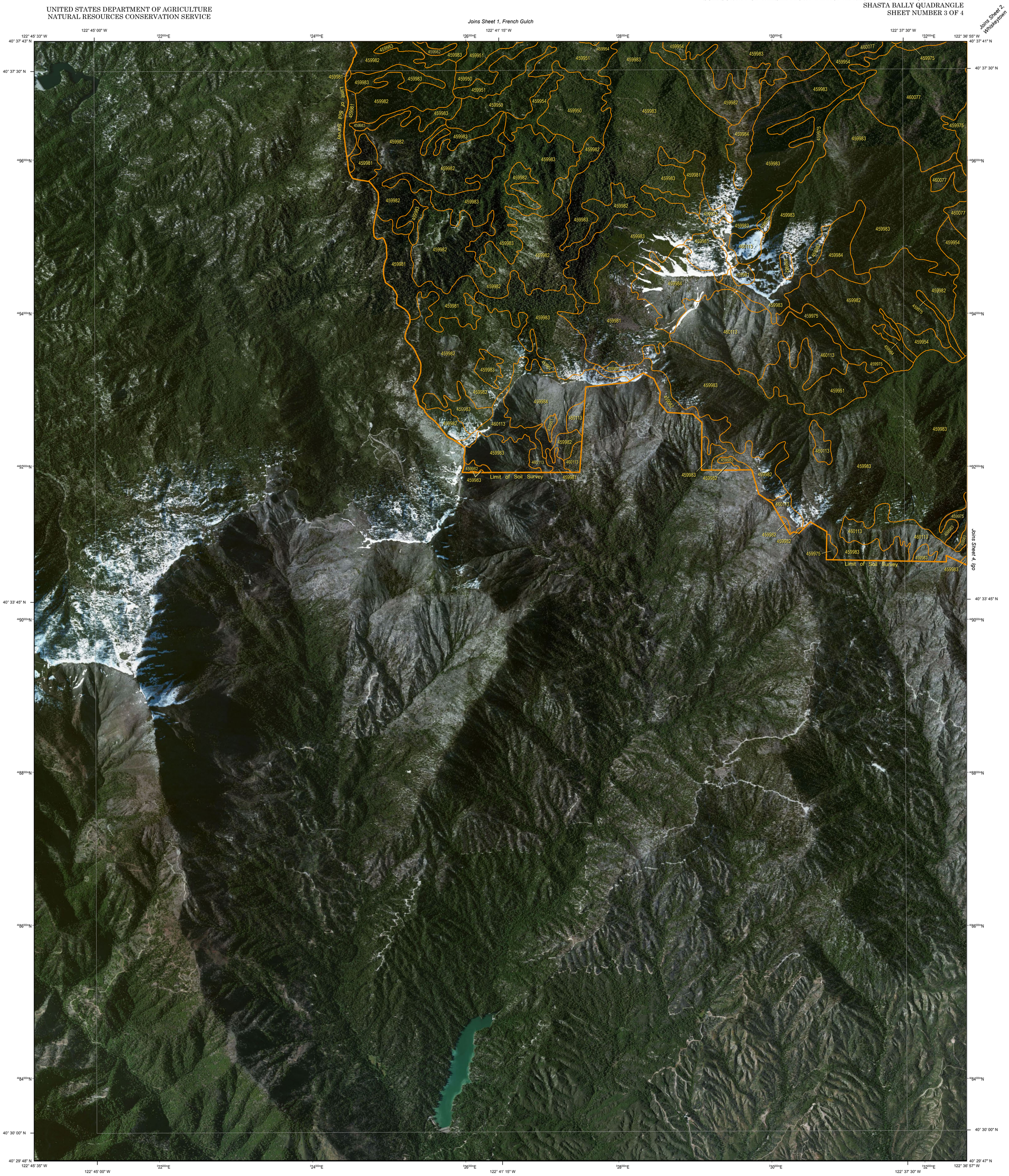
Whiskeytown National Recreation Area, California

Sheet 2 of 4

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SOIL SURVEY OF WHISKEYTOWN NATIONAL RECREATION AREA, CALIFORNIA
SHASTA BALLY QUADRANGLE
SHEET NUMBER 3 OF 4



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NATIONAL PARK SERVICE

NRCS Natural Resources Conservation Service

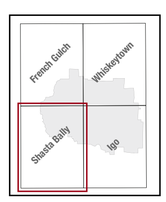
0 5,000 10,000
Feet

0 1 2 3
Kilometers

0 1 2
Miles

SCALE 1:24,000

North



Whiskeytown National Recreation Area, California

Sheet 3 of 4

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SOIL SURVEY OF WHISKEYTOWN NATIONAL RECREATION AREA, CALIFORNIA
IGO QUADRANGLE
SHEET NUMBER 4 OF 4

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, at the request of the Department of the Interior, National Park Service. Base maps are orthophotographs prepared by the U.S. Department of Agriculture, Farm Service Agency from 2006 - 2011 aerial photographs. A 2012 National Park Service boundary was used. Soil information was derived from USDA/NRCS Soil Survey Geographic (SSURGO) database for Whiskeytown National Recreation Area. Universal Transverse Mercator Zone 10 North, North American Datum of 1983 (NAD83).

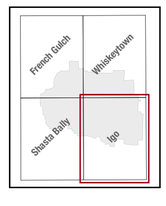
0 5,000 10,000 Feet

0 1 2 3 Kilometers

0 1 2 Miles

SCALE 1:24,000

North



Whiskeytown National Recreation Area, California

Sheet 4 of 4